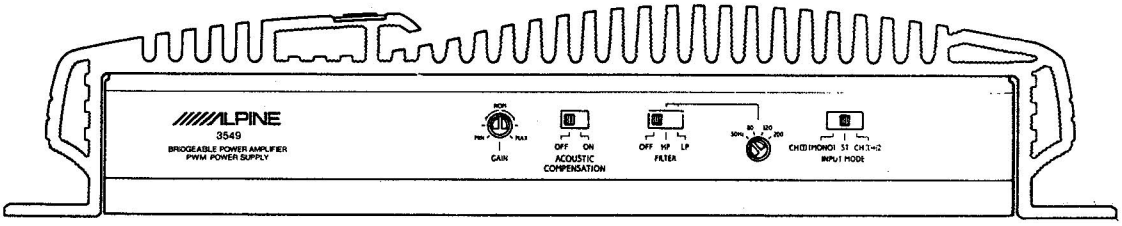
ALPINE®

SERVICE MANUAL

Bridgeable Power Amplifier



サービス費用区分	D
技 術 資 料 No.	PM-45-O

3549

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Specifications

Power Source	11~16V DC
Power Output (at 0.08% T.H.D., Load 4 ohm×2)	1kHz : 95~110W
	20Hz, 20kHz : 90~105W
(at 0.8% T.H.D., Load 2 ohm×2)	1kHz : 140W
	20Hz, 20kHz : 130W
(at 0.8% T.H.D., Load 4 ohm×1 <BTL>)	1kHz : 290W
	20Hz, 20kHz : 270W
Input Sensitivity (at 100W Output)	Speaker Output : 0.5V±2dB
	Line Output : 0.5V±2dB
Input Impedance	20±2k ohm
Output Impedance (Line Output Only)	1k ohm
Distortion (Line Output Only)	0.05%
Frequency Range (at -1dB)	10Hz~60kHz
Channel Separation (input 1k ohm shorted, at 1kHz)	60dB
S/N Ratio	Speaker Output (Ref. 100W) : 100dB
	Line Output (Ref. 0.5V) : 94dB
Residual Noise	Speaker Output : 0.2mV
	Line Output : 10μV
Current Drain (at 10% T.H.D.)	Load 4 ohm×2 : 40A
	Load 4 ohm ×1 (BTL) : 60A
Fuse	20A×2 (Battery)
Semiconductors	14 IC's, 45 Transistors, 8 FET's, 14 Diodes, 9 Zener Diodes
Dimensions (W×H×D)	285×55×300mm
Weight	4kg

Note : Due to continuing product improvement, specifications and design are subject to change without notice.

FEATURES

- **2/1 CHANNEL OPERATION: the 3549 can be used as**
  a. 2-channel amplifier, producing 100 W per channel into 4 Ω, or 150 W per channel into 2 Ω.
  b. 1-channel amplifier, producing 300 W per channel into 4 Ω.

- **STATUS MONITOR**
  This indicator illuminates in green when the amplifier is on and operational. This light will turn to orange if any internal protection circuitry is activated.

- **ACTIVE DIVIDING NETWORK**
  A built-in, switchable and independent electronic crossover network at 50/80/120/200 Hz, 18 dB per octave, can be used to set up the amplifier for low-pass (subwoofer) or high-pass (tweeter/midrange satellite) applications. This network can also be switched off to allow full-range signal amplification.

- **CROSSOVER PRE-OUT**
  The 3549 features an additional output from the Active Dividing Network. This allows connection to amplifiers which do not have a built in crossover, or whose crossover frequency may be fixed. Additionally, the switchable frequency feature of the Active Dividing Network means can be used with other amplifiers built-in crossovers to allow additional system configurations such as midbass driver outputs.

- **ACOUSTIC COMPENSATION CIRCUITRY**
  A selectable (Off or On) equalization curve can be added to the amplifier's output signal, compensating for the frequency response problems found in most automobiles. It extends low bass response and eliminates mid-bass boominess, giving the low frequency response of the audio system tightness and accuracy.

- **MULTIMODE CAPABILITY**
  Multimode capability allows the 3549 to operate in its 2-channel stereo and bridged mono modes simultaneously. This way, the amplifier can power a pair of satellite speakers, along with a bridged mono subwoofer, and/or a true center channel speaker.

FEATURES

- **3, 2, OR 1 CHANNEL OPERATION**
  Thanks to its multimode capability, the 3549 can simultaneously drive a pair of satellite speakers in stereo, along with a bridged mono subwoofer (and/or center channel speaker) for a total of 3 channels. In addition to multimode, the 3549 can be driven in a conventional 2-channel mode, or its two channels can be bridged into a single channel of considerably higher power output.

- **DUO-ß FEEDBACK CIRCUITRY**
  Alpine's proprietary Duo-Beta is a technologically advanced form of feedback circuitry. Duo-Beta supplies low negative feedback throughout the audio frequency bandwidth and very high negative feedback at DC. This stabilizes the amplifier, removes DC offset, and offers excellent total harmonic distortion (T.H.D.) characteristics. It also provides low transient intermodulation distortion (T.I.M.), excellent slew rate, stability, and musicality.

- **NO CURRENT LIMITING**
  Absence of current limiters in the audio section ensures low T.I.M., excellent transient response, and superb sonic quality.

- **S.T.A.R. CIRCUITRY**
  The Alpine-developed Signal Transit for Accurate Response circuit topology improves sonic properties by reducing interaction between different sections of the circuitry.

- **INPUT MODE SELECTOR**
  This switch allows the user to specify the input signal entering the amplifier.
  a. ST (Stereo)
  Allows the right and left channels to reach their designated amplifier channels. This mode provides a stereo output or a center channel common information output (when used in the bridged configuration).
  b. 1 (MONO)
  Disables the right channel input connector and routes the signal through the channel input to all sections of the amplifier. This mode is used when a single (mono) signal is amplified (either in stereo or bridged operation).
  c. 1+2
  Sums the right and left channel input signals and routes the result to all sections of the amplifier. It can be used in stereo or bridged operation to provide a summed (mono) output.

FEATURES

- **PULSE WIDTH MODULATION (PWM) DC-TO-DC SWITCHING MODE POWER SUPPLY**
  Provides excellent power output throughout the audio bandwidth 20 Hz to 20 kHz. Its soft clipping characteristics ensure superb transient response and musicality.

- **FULLY DISCRETE, COMPLEMENTARY OUTPUT CIRCUITRY**

- **INDEPENDENT, CONTINUOUSLY ADJUSTABLE INPUT GAIN CONTROL**
  For matching the 3549 with components with a preamp output level other than 500 mV (the standard preamp output level of Alpine equipment). Also used to obtain certain imaging characteristics or to compensate for different speaker efficiencies.

- **GOLD-PLATED RCA INPUT CONNECTORS**
  For most accurate signal transmission and lowest possible loss. Gold-plated terminals are immune to signal deterioration caused by corrosion in the connectors that can develop over time.

- **GOLD-PLATED, SCREW-DOWN POWER AND SPEAKER TERMINALS**

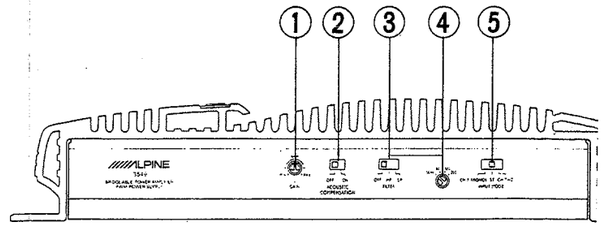
- **HIGH PERFORMANCE, LOW NOISE, AUDIOPHILE QUALITY ACTIVE AND PASSIVE COMPONENTS**
  For best possible performance and consistency from unit to unit.

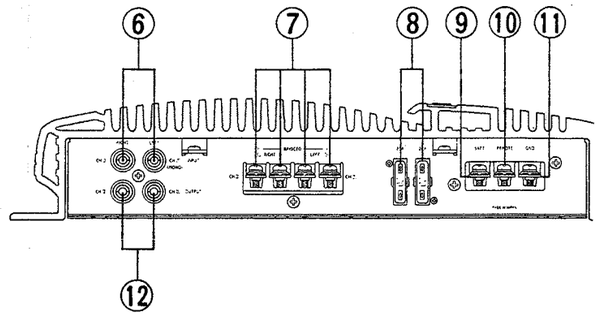
- **THIRD-ORDER (18 dB PER OCTAVE) CAPACITIVE/INDUCTIVE POWER SUPPLY INPUT AND OUTPUT FILTERING**
  Prevents radio frequency interference (RFI) and immunity to system noises (such as alternator whine).

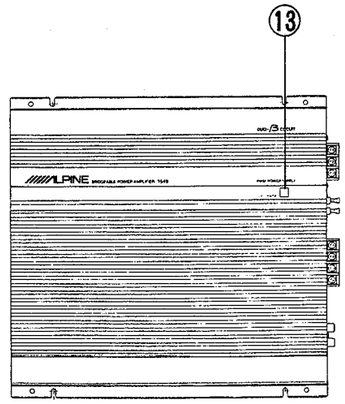
- **EXTRA HEAVY DUTY CONSTRUCTION**
  Glass-epoxy printed circuit boards and separate high current power transfer bus-bars for primary voltage and ground connections inside the amplifier.

- **VOLTAGE REGULATED/FILTERED INPUT STAGES**

SWITCHES AND TERMINALS







FEATURES

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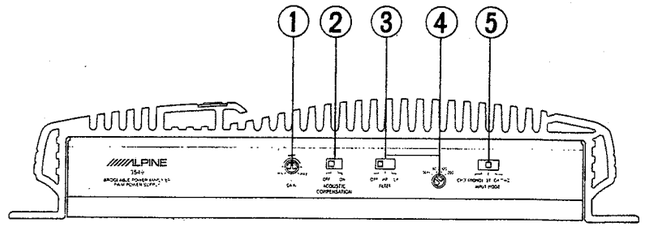
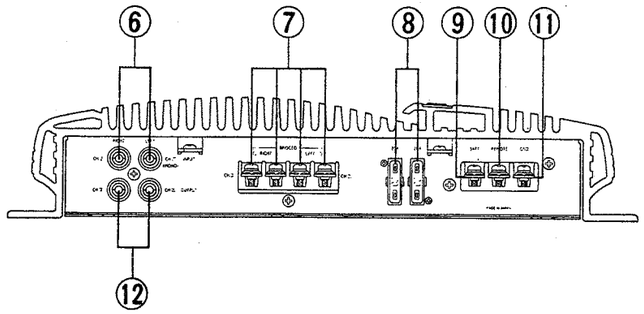
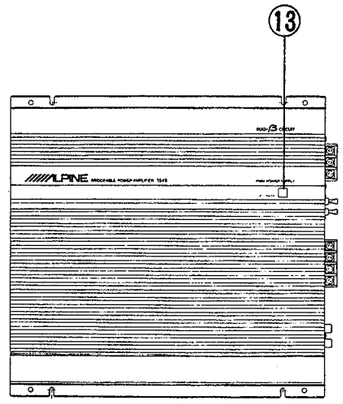


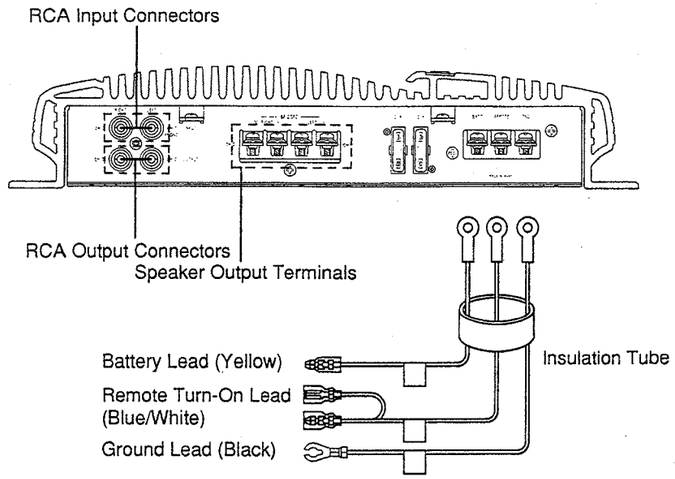




SWITCHES AND TERMINALS

① **Input Gain Adjustment Control**
② **Acoustic Compensation Switch**
③ **Active Dividing Network Mode Selector Switch**
④ **Crossover Frequency Selector Switch**
⑤ **Input Mode Selector Switch**
⑥ **RCA Input Connectors**
⑦ **Speaker Output Terminals**
⑧ **Fuse Blocks (20A x 2)**
⑨ **Battery Lead Terminal**
⑩ **Remote Turn-On Lead Terminal**
⑪ **Ground Lead Terminal**
⑫ **RCA Output Connectors**
⑬ **Status Monitor**

CONNECTIONS



Before making connections, be sure to turn the power off to all audio components. Insulation tubes for the speaker leads and the power supply leads are supplied with the 3549, route the speaker leads and the power supply leads separately through these tubes.

CAUTION:

Do not connect or disconnect any inputs or outputs while the amplifier is on, to avoid signal spikes.

CONNECTIONS

- **Speaker Output Terminals**
  The 3549 has a set of speaker outputs. Be sure to observe correct speaker output polarity and phasing. In the stereo mode, connect the right speaker output to the right speaker and the left to left. Connect the positive output to the positive speaker terminal and the negative to negative. In the bridged mode, connect the left positive to the positive terminal on the speaker and the right negative to the negative terminal of the speaker. Do not use the negative (–) speaker terminal commonly for the right and left speakers or connect them to the vehicle's chassis ground.
  NOTE:
  Do not connect speaker leads together or to chassis ground.

- **RCA Input Connectors**
  Connect these connectors to the line out leads on your head unit using RCA extension cables (sold separately). Be sure to observe correct channel connections; Left to Left, Right to Right, Front to Front, and Rear to Rear.

- **RCA Output Connectors (Crossover Pre-out)**
  Connect these to the line inputs on your other amplifier using Alpine RCA cables (sold separately).

- **Ground Lead (Black)**
  Connect this lead securely to a clean, bare metal spot on the vehicle's chassis. Verify this point to be a true ground by checking for continuity between that point and the negative (–) terminal of the vehicle's battery. Ground all your audio components to the same point on the chassis to prevent ground loops.

- **Battery Lead (Yellow)**
  Connect this lead directly to the positive (+) terminal of the vehicle's battery. *Do not connect this lead to wiring in the vehicle's electrical system.* Be sure to add a 25A in-line fuse as close as possible to the battery's positive (+) terminal. This fuse will protect your vehicle's electrical system in case of a short circuit. If you need to extend this lead, the wire gauge should be 10 AWG or larger.

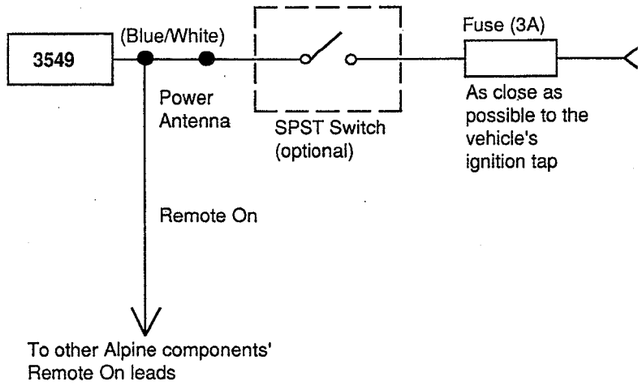
CONNECTIONS

- **Remote Turn-On Lead (Blue/White)**
  Connect this lead to the remote turn-on or power antenna (positiv trigger, (+) 12V only) lead of your head unit.

  Please check your head unit for the conditions listed below:

  a. The head unit does not have a remote turn-on or power anter
  b. The head unit's power antenna lead is activated only when th on (turns off in the tape or CD Mode).
  c. The head unit's power antenna lead is logic level output (+) 5' negative trigger (grounding type), or cannot sustain (+) 12V w connected to other equipment in addition to the vehicle's pow antenna. If any of the above conditions exist, the remote turn- of your 3549 must be connected to a switched power source in the vehicle. Be sure to use a 3A fuse as close as possible t ignition tap. Using this connection method, the 3549 will turn stay on as long as the ignition switch is on.

  If this is objectionable, a SPST (Single Pole, Single Throw) switc addition to the 3A fuse mentioned above, may be installed in-line 3549 turn-on lead. This switch will then be used to turn on (and c 3549. Therefore, the switch should be mounted so that is access the driver. Make sure the switch is turned off when the vehicle is running. Otherwise, if the amplifier is left on for an extended peri time, the car's battery may be drained.



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CA Input Connectors

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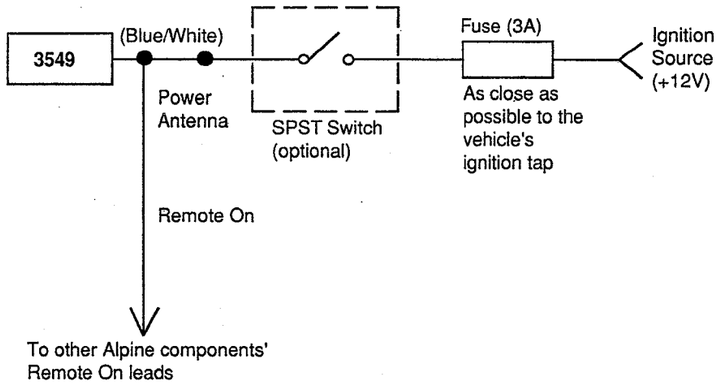
CONNECTIONS

- **Remote Turn-On Lead (Blue/White)**
  Connect this lead to the remote turn-on or power antenna (positive trigger, (+) 12V only) lead of your head unit.

  Please check your head unit for the conditions listed below:

  a. The head unit does not have a remote turn-on or power antenna lead.
  b. The head unit's power antenna lead is activated only when the radio is on (turns off in the tape or CD Mode).
  c. The head unit's power antenna lead is logic level output (+) 5V, negative trigger (grounding type), or cannot sustain (+) 12V when connected to other equipment in addition to the vehicle's power antenna. If any of the above conditions exist, the remote turn-on lead of your 3549 must be connected to a switched power source (ignition) in the vehicle. Be sure to use a 3A fuse as close as possible to this ignition tap. Using this connection method, the 3549 will turn on and stay on as long as the ignition switch is on.

  If this is objectionable, a SPST (Single Pole, Single Throw) switch, in addition to the 3A fuse mentioned above, may be installed in-line on the 3549 turn-on lead. This switch will then be used to turn on (and off) the 3549. Therefore, the switch should be mounted so that is accessible by the driver. Make sure the switch is turned off when the vehicle is not running. Otherwise, if the amplifier is left on for an extended period of time, the car's battery may be drained.



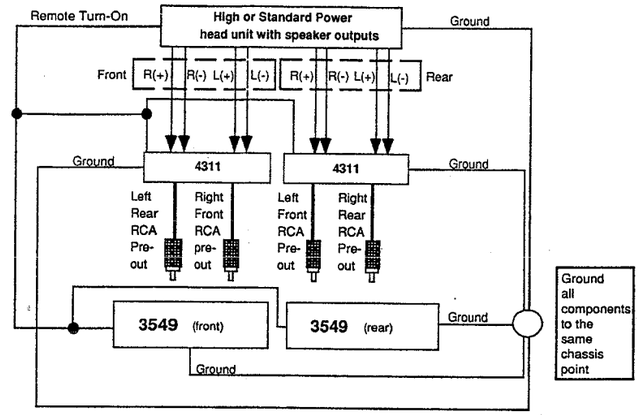
CONNECTIONS

INTERFACING A HEAD UNIT WITH NO PRE-AMP OUTPUTS:

The 3549 can be used with any high power or standard power head unit by using the speaker outputs of these head units. This includes Alpine, other aftermarket, and OEM factory-installed source units.

An Alpine 4311 speaker to pre-amp interface is needed to accomplish this. The 4311 features low impedance, balanced inputs for better isolation, better system noise immunity, and proper operation of the head unit controls such as balance and fader.

Connect the 4311 as shown below between the head unit and the 3549. Be sure to read Notes 1 through 3.



NOTE 1: Some head units' speaker outputs may have an inherent turn on or turn off pop noise. Although the 4311 will prevent additional system noise usually associated with large system upgrades of this type, it cannot improve upon the design of the signal source. If there is a pop noise present in the head unit, it will be amplified through the system and may be objectionable. In such a case, the solution is to upgrade to an Alpine head unit.

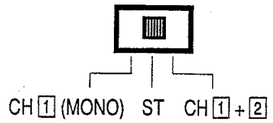
NOTE 2: The 4311 can be mounted near the amplifier or near the head unit. However, running long RCA cables may increase chances of encountering a system noise problem. Therefore, mounting the 4311 close to the amplifier is preferable.

NOTE 3: To avoid introducing system noises such as alternator whine, ground all amplifiers, signal processors, 4311's and the head unit to the same point on the chassis.

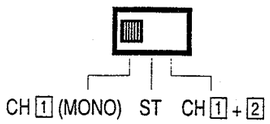
SWITCH SETTINGS

Input Mode Selector Switch

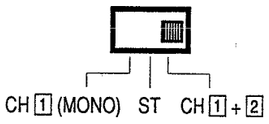
a) Set to the "ST" position (center) when the two channels are used in stereo.



b) Set to the "1 (MONO)" position when the two channels are used for one channel of a stereo or bridged system.



c) Set to the "1 + 2" position when the two channels are used for a subwoofer system which uses the right channel and left channel signals summed.



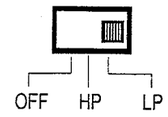
Input Gain Adjustment Control

After setting your head unit's volume control 1/4 of a turn down from the maximum output level, rotate the Input Gain Adjustment Control with a #0 flat blade screwdriver and adjust the input gain to the point where there is maximum volume with no distortion.

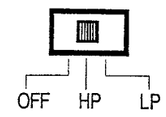
SWITCH SETTINGS

Active Dividing Network Mode Selector Switch

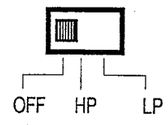
a) High frequencies will be cut from the speaker outputs at 18 dB per octave. Low frequencies will be cut from the RCA Crossover Pre-outs, to feed into a separate amplifier for driving satellite speakers.



b) Low frequencies will be cut from the speaker outputs at 18 dB per octave. High frequencies will be cut from the RCA Crossover Pre-outs, to feed into a separate amplifier for driving subwoofers.



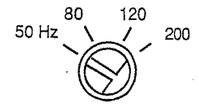
c) Set to the "OFF" position when the 3549 is used for the regular stereo system with full-range speakers. This disables the crossover, sending all frequencies through the amplifier.



SWITCH SETTINGS

Crossover Frequency Selector Switch

Permits adjustment of the crossover frequency, by selecting 50, 8 or 200 Hz as the crossover point.



Acoustic Compensation Selector Switch

a) Turn this switch on to compensate for the loss of low bass and to midbass boominess.

b) Listen to the system with the switch in both the ON and OFF posit Since the response of the system can vary depending on vehicle t interior size, and other characteristics of the listening area, choose position that provides the best sound reproduction.

Status Monitor

This indicator lights in green when the power is on. The 3549 has protection circuitry. If, for some reason, this protection circuit is activa the indicator turns orange. If this happens, turn the system off, find th of the problem and remedy the situation. This includes checking all yc connections and wiring. If the indicator remains orange when the syst turned on, consult your authorized Alpine dealer.

NOTE:

The indicator will illuminate in orange for a few seconds when the power is turned on as the turn on muting circuit is activated. This is nc

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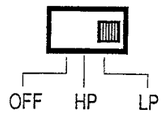

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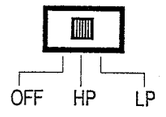

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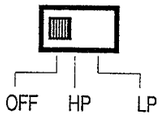
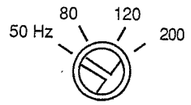
ange speakers. This disables the crossover, sending all
gh the amplifier.



SWITCH SETTINGS

Crossover Frequency Selector Switch

Permits adjustment of the crossover frequency, by selecting 50, 80, 120, or 200 Hz as the crossover point.



Acoustic Compensation Selector Switch

a) Turn this switch on to compensate for the loss of low bass and to reduce midbass boominess.
b) Listen to the system with the switch in both the ON and OFF positions. Since the response of the system can vary depending on vehicle type, interior size, and other characteristics of the listening area, choose the position that provides the best sound reproduction.

Status Monitor

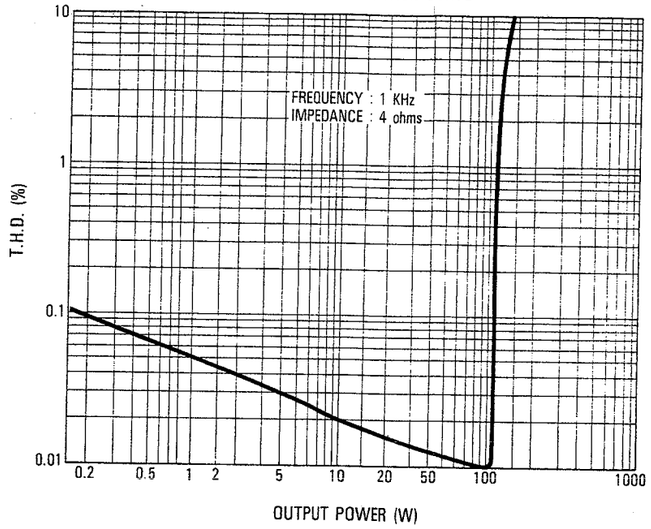
This indicator lights in green when the power is on. The 3549 has built-in protection circuitry. If, for some reason, this protection circuit is activated, the indicator turns orange. If this happens, turn the system off, find the cause of the problem and remedy the situation. This includes checking all your connections and wiring. If the indicator remains orange when the system is turned on, consult your authorized Alpine dealer.

NOTE:

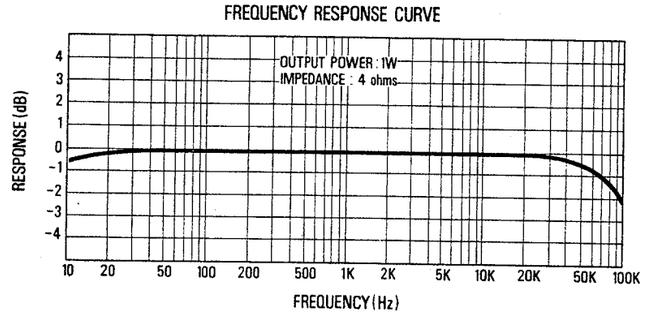
The indicator will illuminate in orange for a few seconds when the power is turned on as the turn on muting circuit is activated. This is normal.

CHARACTERISTIC CURVES

POWER V.S. DISTORTION CURVE



FREQUENCY RESPONSE CURVE



故障かな…？と思う前に

操作ミスや勘違いで故障と間違えることがあります。修理を依頼する前にもう一度チェックしてみましょう。案外、ちょっとしたお手入れで直ることが多いものです。

症　　状	原　　因	処　　置
動作しない。 ●電源インジケーターが点灯しない。 ●保護回路表示インジケーターが点灯する。 ●ヒューズが切れるなどの症状。	ヘッド・ユニットの電源が入っていない。	ヘッド・ユニットの電源を入れる。
	アース・リード線の接続が不完全。	アース・リード線の接続を確認する。
	バッテリー電源リード線の接続が不完全。	バッテリー電源リード線の接続を確認する。
	ヒューズが切れている。	所定容量のヒューズと交換する。
	リモート・オン・リード線の接続が不完全。	リモート・オン・リード線の接続を確認する。
	スピーカのインピーダンスとアンプ出力が合っていない。	スピーカ・インピーダンスを確認する。
	スピーカ配線がショートしている。	スピーカ配線を交換する。
電源は入るが、音が出ない。	入力モード切替スイッチ位置がシステムに合っていない。	システムに合わせて正しい位置にする。
	ＰＩＮコードの接続が不完全。	ＩＮＰＵＴ端子に正しく挿入する。
	スピーカ配線が不完全。	スピーカ配線の接続を確認する。
	入力感度調整ボリューム位置がシステムに合っていない。	システムに合わせて正しい位置にする。

特長

●アクティブ・ディバイディング・ネットワーク内蔵

18dB/Oct.スロープの本格的アクティブ・ディバイディング・ネットワークを内蔵。ローパス(サブウーハー)やハイパス(ツィータ/ミッドレンジ)出力が簡単に取り出すことができるのでマルチ・システムやサブウーハー・システムなど高度なシステムを構成するのに便利です。

●クロスオーバー周波数切りかえスイッチ

●クロスオーバー・プリ出力

内蔵のアクティブ・ディバイダーを経由した、プリ出力付きです。他のアンプと組合わせれば、より高度なシステムが楽しめます。

●車室内音場補正回路(アコースティック・コンペンセイション)

低域のこもり感をなくすなど、車室内の音場を補正することができます。

●DUO-β (デュオ・ベータ)回路

中・高域用の適量NFB回路と低域用のDCサーボ回路の２つを巧みに組み合わせて全帯域にわたるバランスのとれた再生を実現しました。

●STARサーキット採用

電子の流れの停滞をなくし、スムーズな流れを実現しながら０電位を厳密に取るアルパイン独自のSTARサーキットを採用しました。
この回路により、SN比と音の再現性を向上させました。

●入力モード切りかえスイッチ

このスイッチの切りかえにより通常のステレオでの使用のみならずブリッジ動作させてサブ・ウーハー用アンプとして使用するなど多彩なシステム構成が可能です。

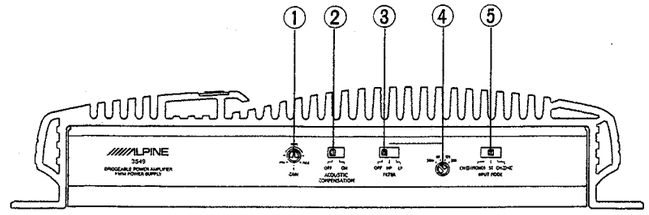
●入力感度調整ボリューム

●電源保護回路(表示インジケーター付)

長時間、大出力で使用したり、瞬間的に大電流が流れた場合など製品内部の異常を検知して、自動的に電源回路をシャットダウンし製品を守ります。

3549

各部の名称



①入力感度調整ボリューム
②アコースティック・コンペンセイション・スイッチ
③クロスオーバー・モード切替スイッチ
④クロスオーバー周波数切替スイッチ
⑤入力モード切替スイッチ

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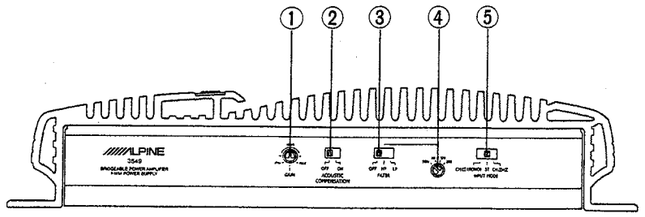
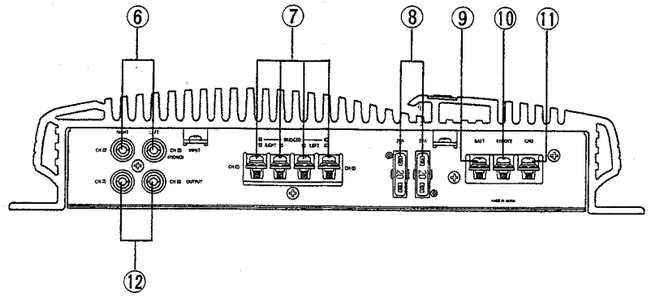
各部の名称

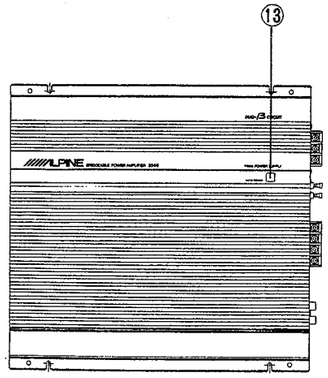


①入力感度調整ボリューム
②アコースティック・コンペンセイション・スイッチ
③クロスオーバー・モード切替スイッチ
④クロスオーバー周波数切替スイッチ
⑤入力モード切替スイッチ

各部の名称

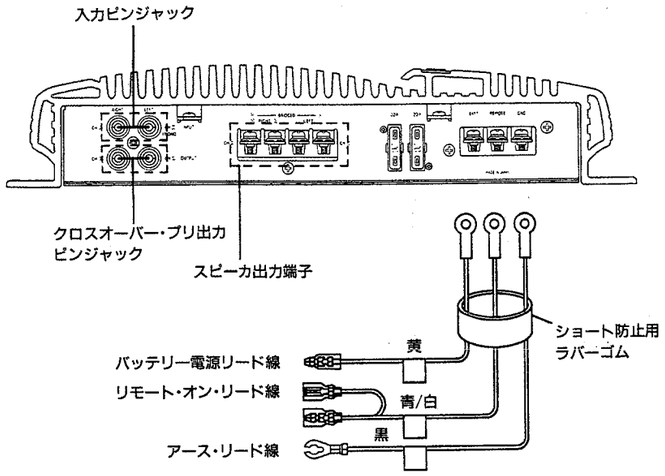


⑥入力ピンジャック
⑦スピーカ出力端子
⑧ヒューズ・ブロック(20A×2)
⑨バッテリー電源端子
⑩リモート・オン端子
⑪アース端子
⑫クロスオーバー・プリ出力ピンジャック
⑬電源/保護回路表示インジケーター



接続

本機はパワー アンプですので音量、音質等はすべて、カセット・デッキ やグラフィック・イコライザー等の接続ユニット側で調整をおこないます。(調整方法は接続ユニットの取扱説明書を参照してください。) 下記に従って各々のリード線を確実に接続してご使用ください。
他社製品および純正製品と組み合わせたとき、不具合が発生する場合があります。このような接続については、事前にお買い上げ店またはアルパイン・サービス・インフォメーション・センターにご相談ください。



※ショート防止用ラバーゴム
隣接端子間のショート防止用のラバーゴムです。各々のリード線を接続する前にこのラバーゴムをリード線に通してから接続した後、スピーカ出力端子および電源端子に覆いかぶせてください。

■**スピーカ出力リード線**……本機の出力に合ったスピーカに⊕、⊖、L、R、を間違えないように接続します。スピーカ出力リード線の⊖端子は絶対に左・右共通使用や自動車のシャーシー・アースに落とすことは避けてください。

■**アース・リード線**……車のボディーの金属部にビス止めします。
アースが不完全ですと本体が動作しなかったり、雑音の原因ともなります。

■**バッテリー電源リード線**……別売の電源コードを使用して、車のバッテリーの⊕端子へ接続します。

■**リモート・オン・リード線**……接続ユニットのリモート・オン・リード線に接続します。

操作方法

●入力感度調整ボリューム①について

アルパイン製品と組み合わせる場合は、必ず“NOM”に合わせてください。
アルパイン製品以外と組み合わせる場合は、接続ユニットの出力に合わせて調整してください。

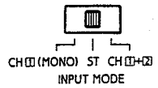
●電源/保護回路表示インジケーター⑬について

このランプは電源がONされて通常の動作中にはグリーンに点灯します。何らかのトラブルが発生するとアンプ内の保護回路が働きオレンジ色に変わります。インジケーターがオレンジ色に点灯した場合は、すみやかにその原因を探りトラブルに対処してください。常時、オレンジ色に点灯する場合は、お買い上げの販売店にご相談ください。

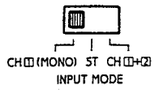
ご注意
電源をONした直後、オレンジ色に点灯するのは保護回路が働いているためであり異常ではありません。

●入力モード切替スイッチ⑤について

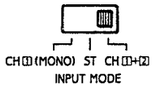
1ステレオ2チャンネル・モードとして使用するとき“ST”にセットします。



2ステレオでブリッジ・モードの片チャンネル用として使用するとき“(MONO)”にセットします。



3サブウーハーなどのように右チャンネルと左チャンネルをミックスして出力させるとき“CH1+2”にセットします。



●アコースティック・コンペイセイション・スイッチ②について

スイッチを“ON”すると、車室内の音響周波数を補正します。

●クロスオーバー・モード切替スイッチ③について

1ローパス(サブウーハー)用として使用するとき“LP”にセットします。

※1. スピーカ端子の出力はハイカットされます。
※2. クロスオーバー・プリ出力はローカットされます。

2ハイパス(ツィータ/ミッドレンジおよびサブウーハーを使用した場合のウーハー)やサブウーハーと組み合わせるフルレンジ・スピーカ駆動用として使用するとき“HP”にセットします。

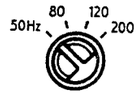
※1. スピーカ端子の出力はローカットされます。
※2. クロスオーバー・プリ出力はハイカットされます。

3フルレンジ・スピーカによる通常のシ
用として使用するときは“OFF”にセ
ます。

※ローカットも
トもされない
力となります

●クロスオーバー周波数切替ス
④について

クロスオーバー周波数を50, 80, 120
の4ポイントで切りかえることがて



●出力信号について

クロスオーバー・モード切替スイッチ③の位置	出力信号	
	スピーカ出力端子⑦	クロスオーバー・プ出力ピンジャック⑫
LP	ハイカット	ローカット
HP	ローカット	ハイカット
OFF	全帯域	全帯域

法

ボリューム①について

と組み合わせる場合は、必
せてください。
以外と組み合わせる場合は、
力に合わせて調整してく

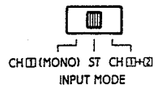
表示インジケーター

がONされて通常の動作中
灯します。何らかのトラ
アンプ内の保護回路が働
わります。インジケータ
点灯した場合は、すみや
りトラブルに対処してく
レンジ色に点灯する場合
販売店にご相談ください。

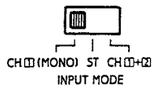
後、オレンジ色に点灯す
が働いているためであり
ん。

●入力モード切替スイッチ⑤について

1ステレオ2チャンネル・モードとして使用するとき“ST”にセットします。



2ステレオでブリッジ・モードの片チャンネル用として使用するとき“(MONO)”にセットします。



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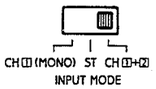


●アコースティック・コンペイセイション・スイッチ②について

スイッチを“ON”すると、車室内の音響周波数を補正します。

●クロスオーバー・モード切替スイッチ③について

1ローパス(サブウーハー)用として使用するとき“LP”にセットします。

※1.スピーカ端子の出力はハイカットされます。
※2.クロスオーバー・プリ出力はローカットされます。

2ハイパス(ツィータ/ミッドレンジおよびサブウーハーを使用した場合のウーハー)やサブウーハーと組合わせるフルレンジ・スピーカ駆動用として使用するとき“HP”にセットします。

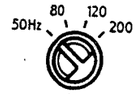
※1.スピーカ端子の出力はローカットされます。
※2.クロスオーバー・プリ出力はハイカットされます。

3フルレンジ・スピーカによる通常のシステム用として使用するときは“OFF”にセットします。

※ローカットもハイカットもされない全帯域出力となります。

●クロスオーバー周波数切替スイッチ④について

クロスオーバー周波数を50, 80, 120, 200Hzの4ポイントで切りかえることができます。

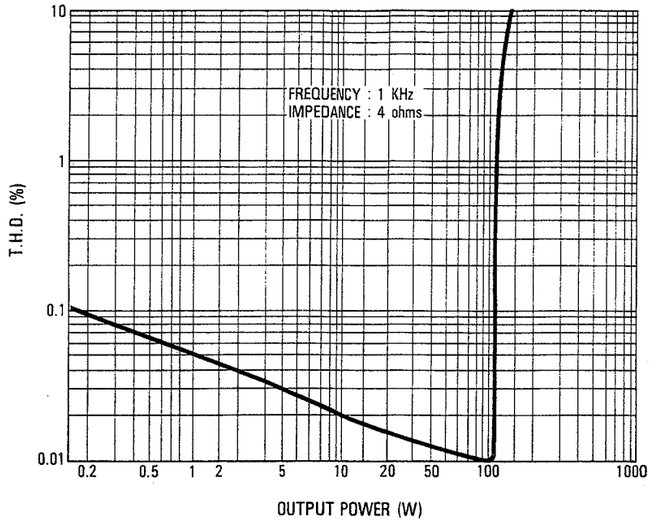


●出力信号について

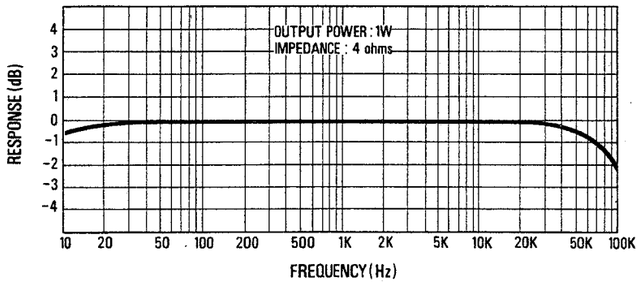
クロスオーバー・モード切替スイッチ③の位置	出力信号	
	スピーカ出力端子⑦	クロスオーバー・プリ出力ピンジャック⑫
LP	ハイカット	ローカット
HP	ローカット	ハイカット
OFF	全帯域	全帯域

特性カーブ

POWER V.S. DISTORTION CURVE



FREQUENCY RESPONSE CURVE



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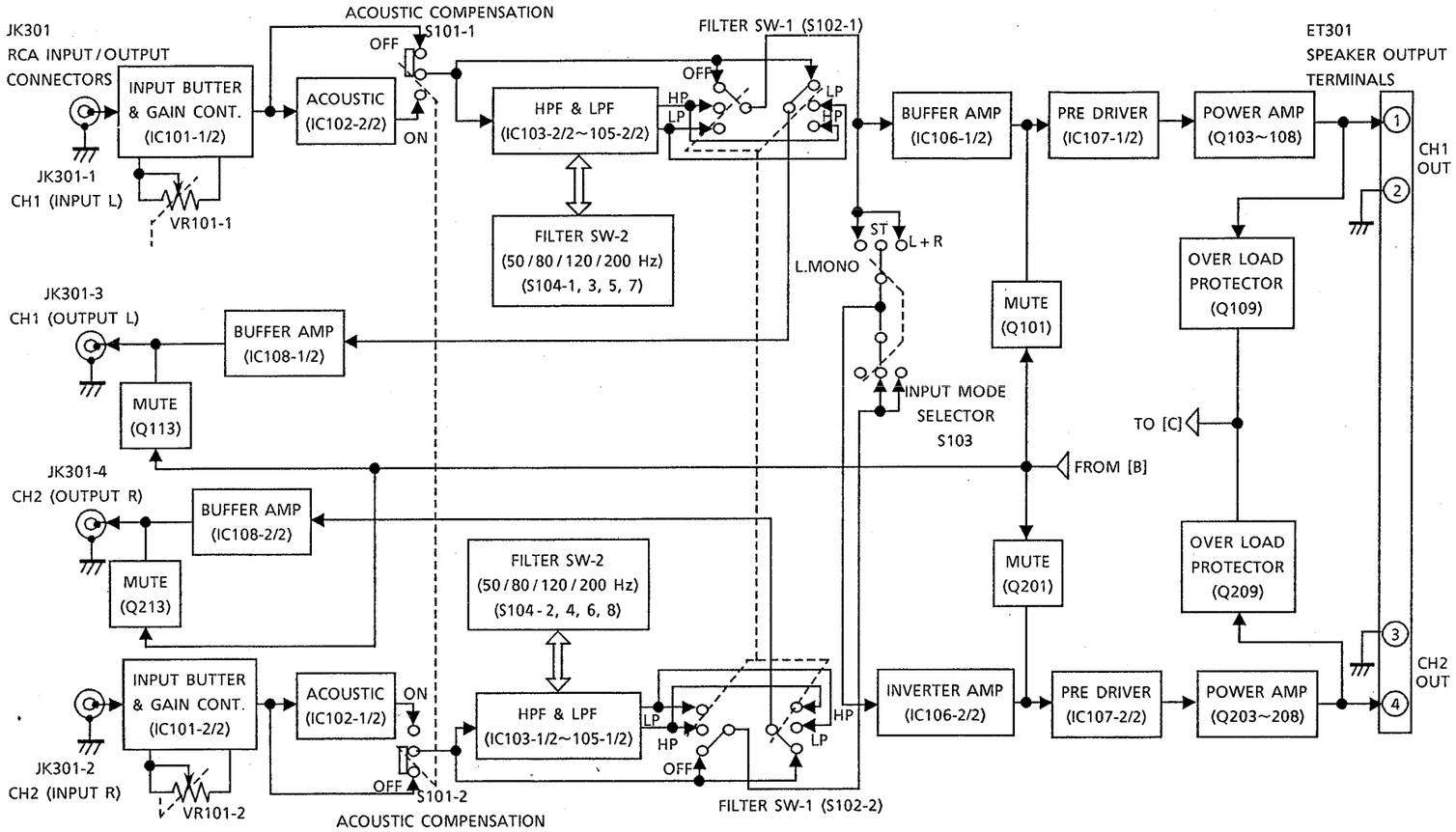
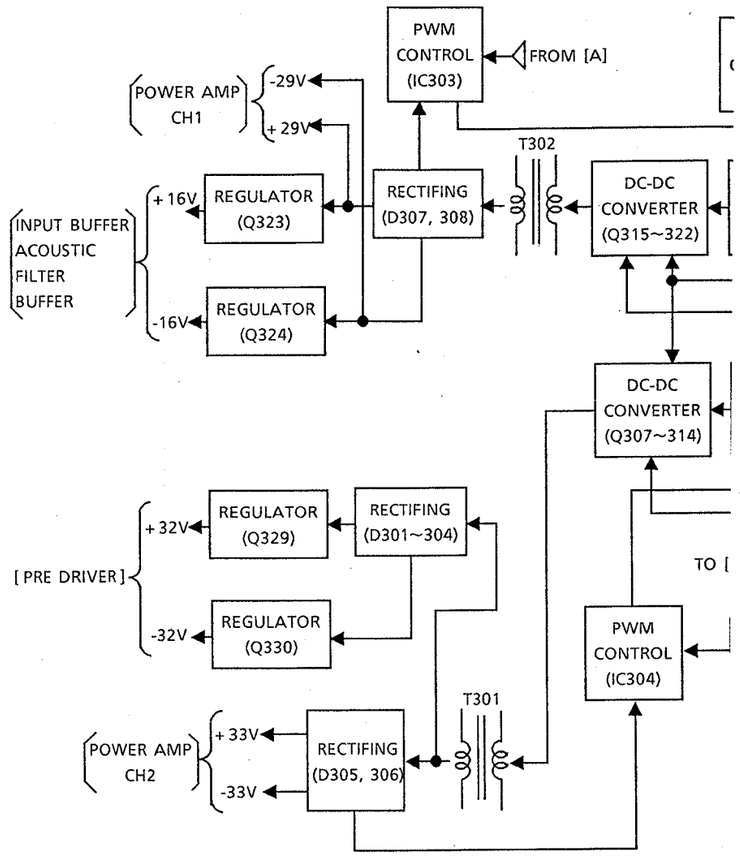
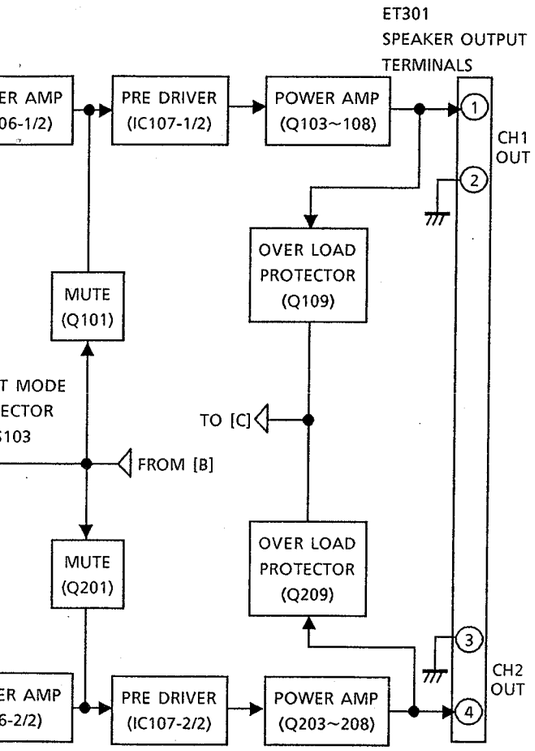
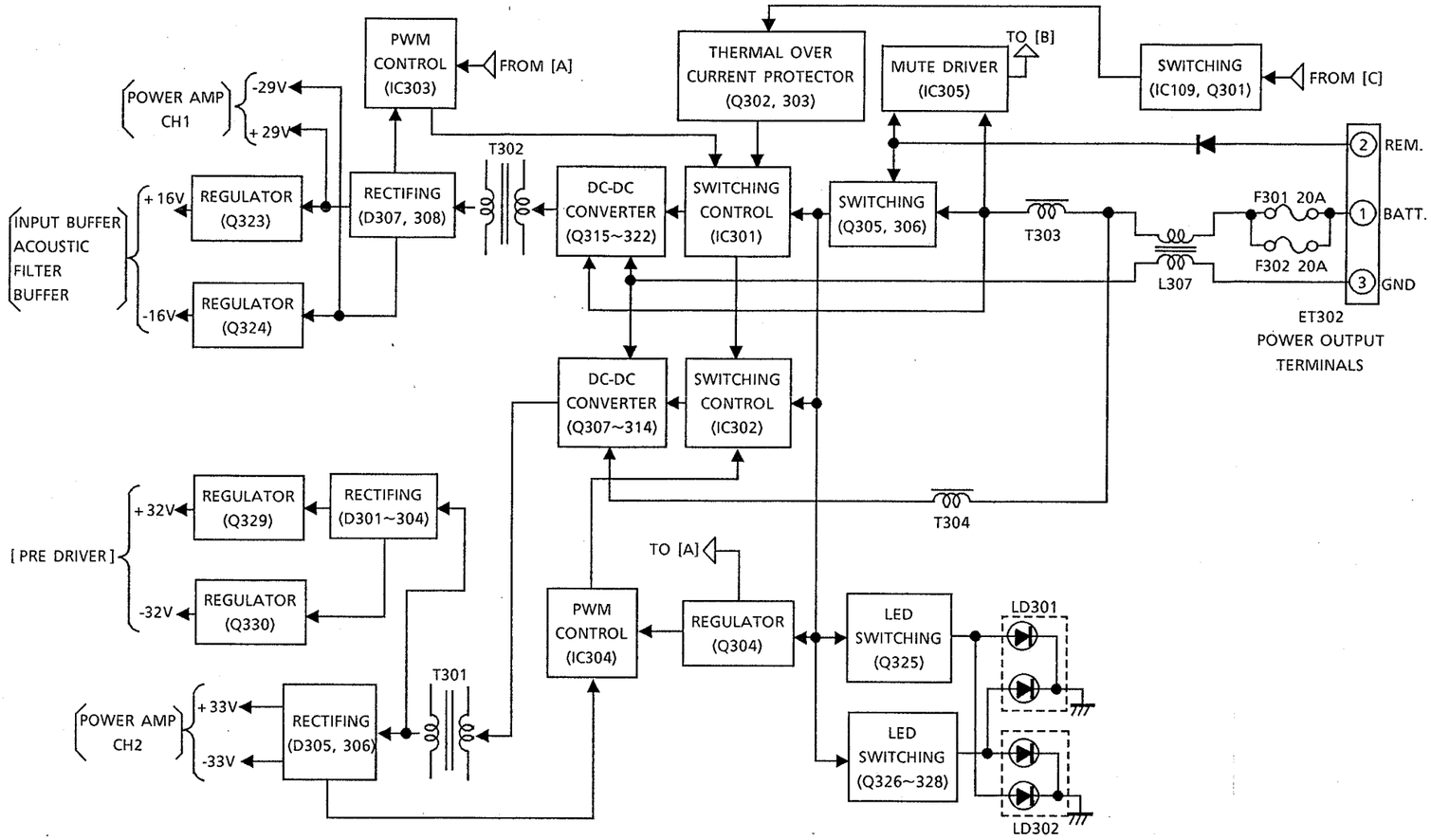
Block Diagram






ET301
SPEAKER OUTPUT
TERMINALS
ER AMP
06-1/2)
PRE DRIVER
(IC107-1/2)
POWER AMP
(Q103~108)
1
2
CH1
OUT
OVER LOAD
PROTECTOR
(Q109)
MUTE
(Q101)
T MODE
ECTOR
S103
TO [C]
FROM [B]
MUTE
(Q201)
OVER LOAD
PROTECTOR
(Q209)
3
4
CH2
OUT
ER AMP
6-2/2)
PRE DRIVER
(IC107-2/2)
POWER AMP
(Q203~208)


PWM
CONTROL
(IC303)
FROM [A]
THERMAL OVER
CURRENT PROTECTOR
(Q302, 303)
MUTE DRIVER
(IC305)
TO [B]
SWITCHING
(IC109, Q301)
FROM [C]
POWER AMP
CH1
-29V
+29V
T302
2
REM.
F301 20A
1
BATT.
F302 20A
3
GND
ET302
POWER OUTPUT
TERMINALS
INPUT BUFFER
ACOUSTIC
FILTER
BUFFER
+16V
REGULATOR
(Q323)
RECTIFING
(D307, 308)
DC-DC
CONVERTER
(Q315~322)
SWITCHING
CONTROL
(IC301)
SWITCHING
(Q305, 306)
T303
L307
-16V
REGULATOR
(Q324)
DC-DC
CONVERTER
(Q307~314)
SWITCHING
CONTROL
(IC302)
T304
[PRE DRIVER]
+32V
REGULATOR
(Q329)
RECTIFING
(D301~304)
TO [A]
-32V
REGULATOR
(Q330)
PWM
CONTROL
(IC304)
REGULATOR
(Q304)
LED
SWITCHING
(Q325)
LD301
T301
POWER AMP
CH2
+33V
-33V
RECTIFING
(D305, 306)
LED
SWITCHING
(Q326~328)
LD302

Disassembly Instruction

1. Removal of AMP P.C.Board

(1) After removal of Bottom Cover, remove Solder (a) and thirty-seven screws marked "○" as shown in Figure 1.
(2) Remove the connector from LED P.C.Board as shown in Figure 1.
(3) AMP P.C.Board with Rear Chassis, RCA P.C.Board and Power P.C.Board can be removed completely.

1. アンプ基板の外し方

(1) ボトムカバーを外した後で, 半田(a) と37本のネジ(○印)を外します。(1図参照)
(2) LED基板からのコネクターを外します。(1図参照)
(3) 以上で, アンプ基板は リア・シャーシとRCA基板, パワー基板が付いた状態で外れます。

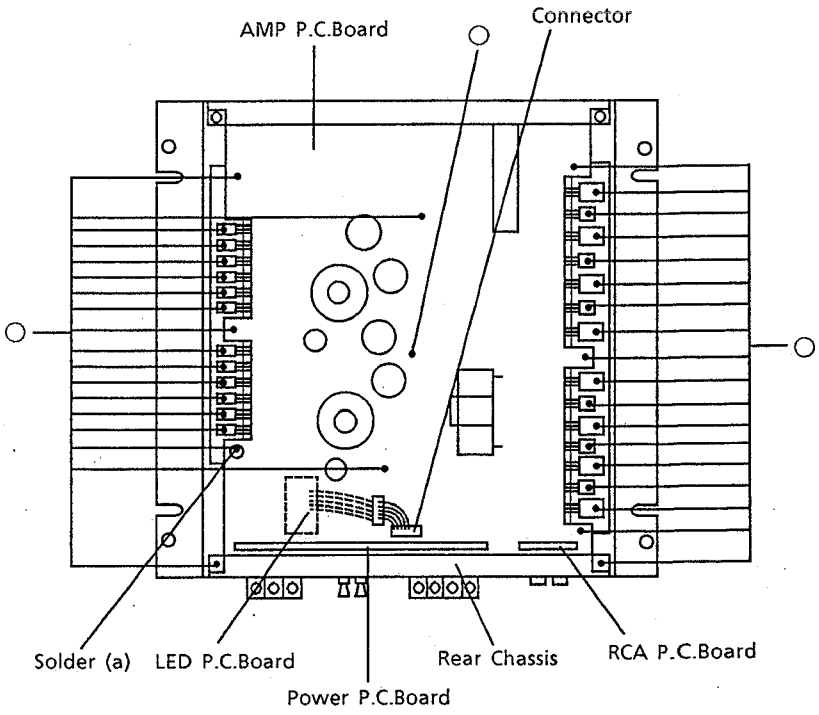


Figure 1

2. Removal of Rear Chassis

(1) Removal of AMP P.C.Board, remove two Fuses, eight screws marked "△"and four Hooks (A) as shown in Figure 2, 3.

2. リア･シャーシの外し方

(1) アンプ基板を外した後で, 2個のヒューズを外し, 8本のネジ (△印)と4箇所のツメ (A)を外します。(2, 3図参照)

3. Removal of Power P.C.Board

(1) Removal of Rear Chassis, remove two Solder (b) and two Hooks (B) as shown in Figure 2.

3. パワー基板の外し方

(1) リア･シャーシを外した後で, 2箇所の半田 (b) と2箇所のツメ (B) を外します。(2図参照)

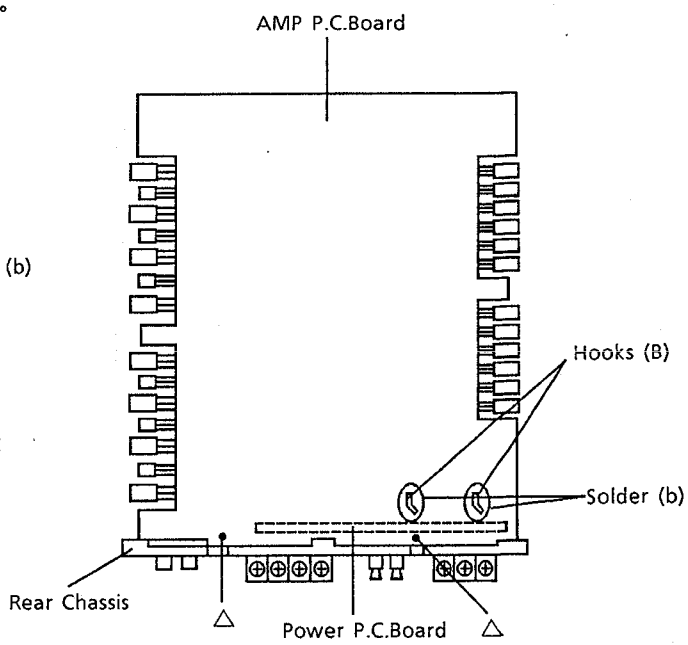


Figure 2

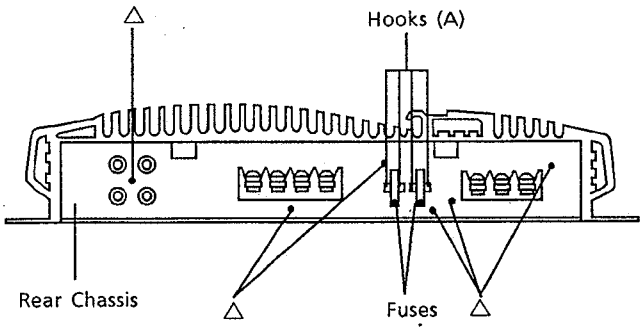


Figure 3

Adjustment Procedures

1. Power Supply Voltage Adjustment

(1) Connections

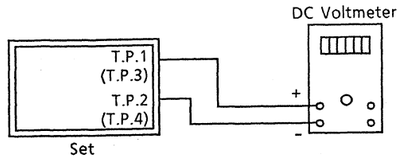


Figure 4

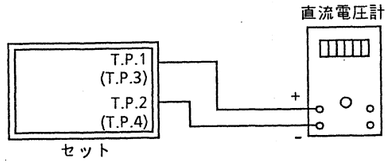
(2) Adjustment Procedures

① CH1 · Side : Adjust VR301 so that voltage between T.P.1 and T.P.2 reaches 65 ± 0.5V.
② CH2 · Side : Adjust VR302 so that voltage between T.P.3 and T.P.4 reaches 65 ± 0.5V.

調整方法

1. 電源電圧調整

(1) 接続図

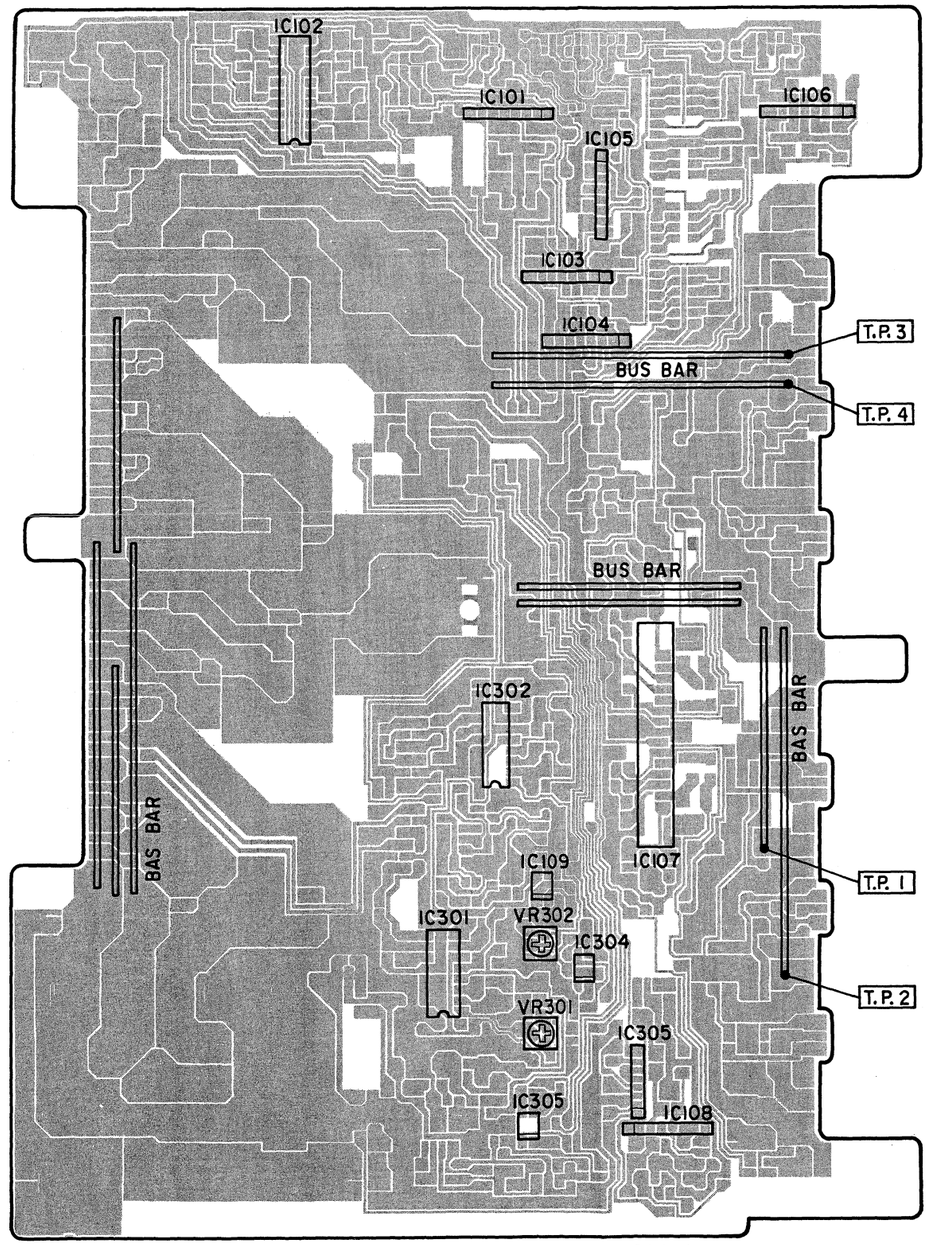


<4図>

(2) 調整方法

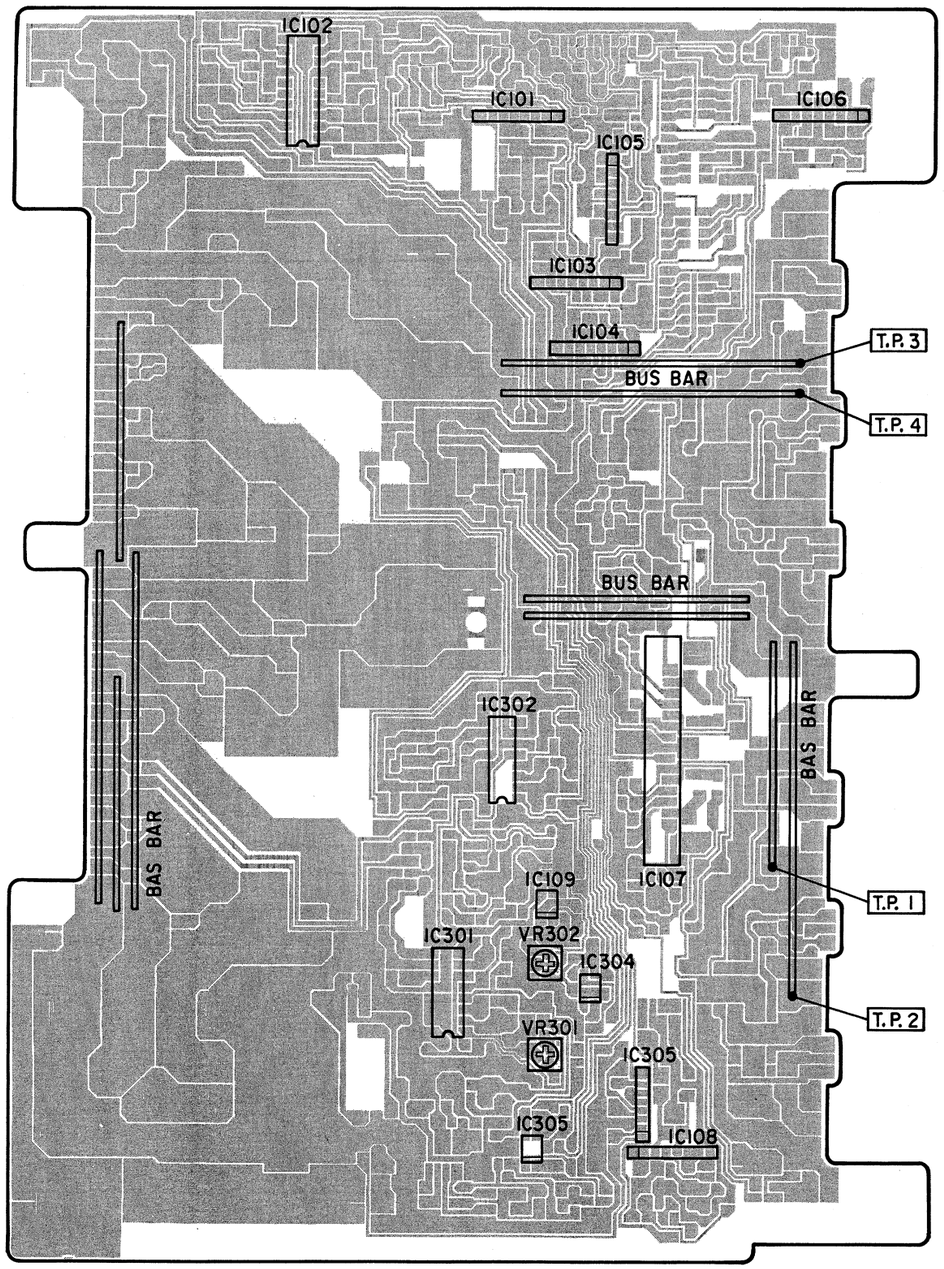
① CH1側 : T.P.1, T.P.2間の電圧が65 ± 0.5Vになる様にVR301で調整します。
② CH2側 : T.P.3, T.P.4間の電圧が65 ± 0.5Vになる様にVR302で調整します。

Adjustment Locations



AMP P.C.Board (Component Side)

Adjustment Locations



AMP P.C.Board (Component Side)

MEMO

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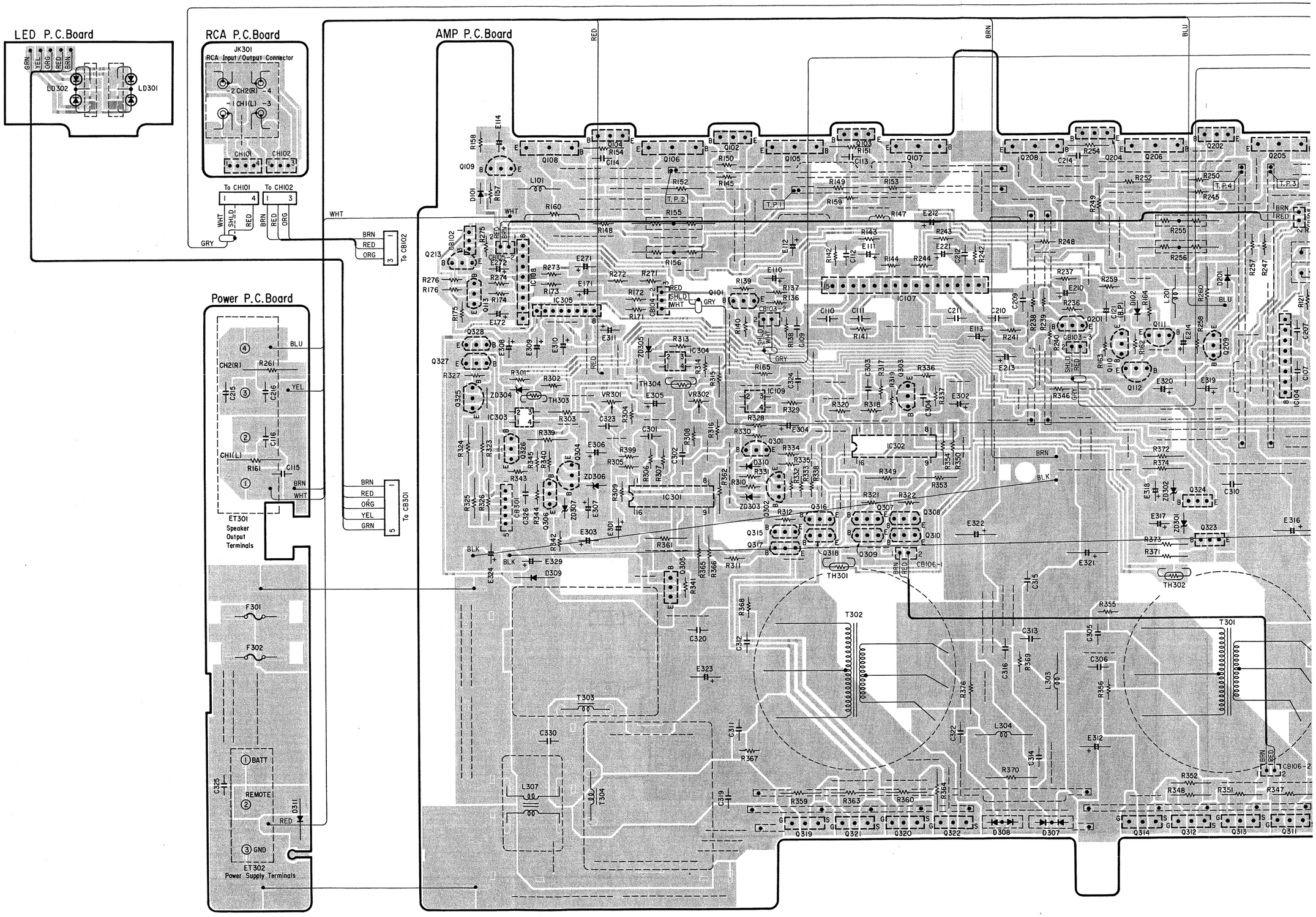
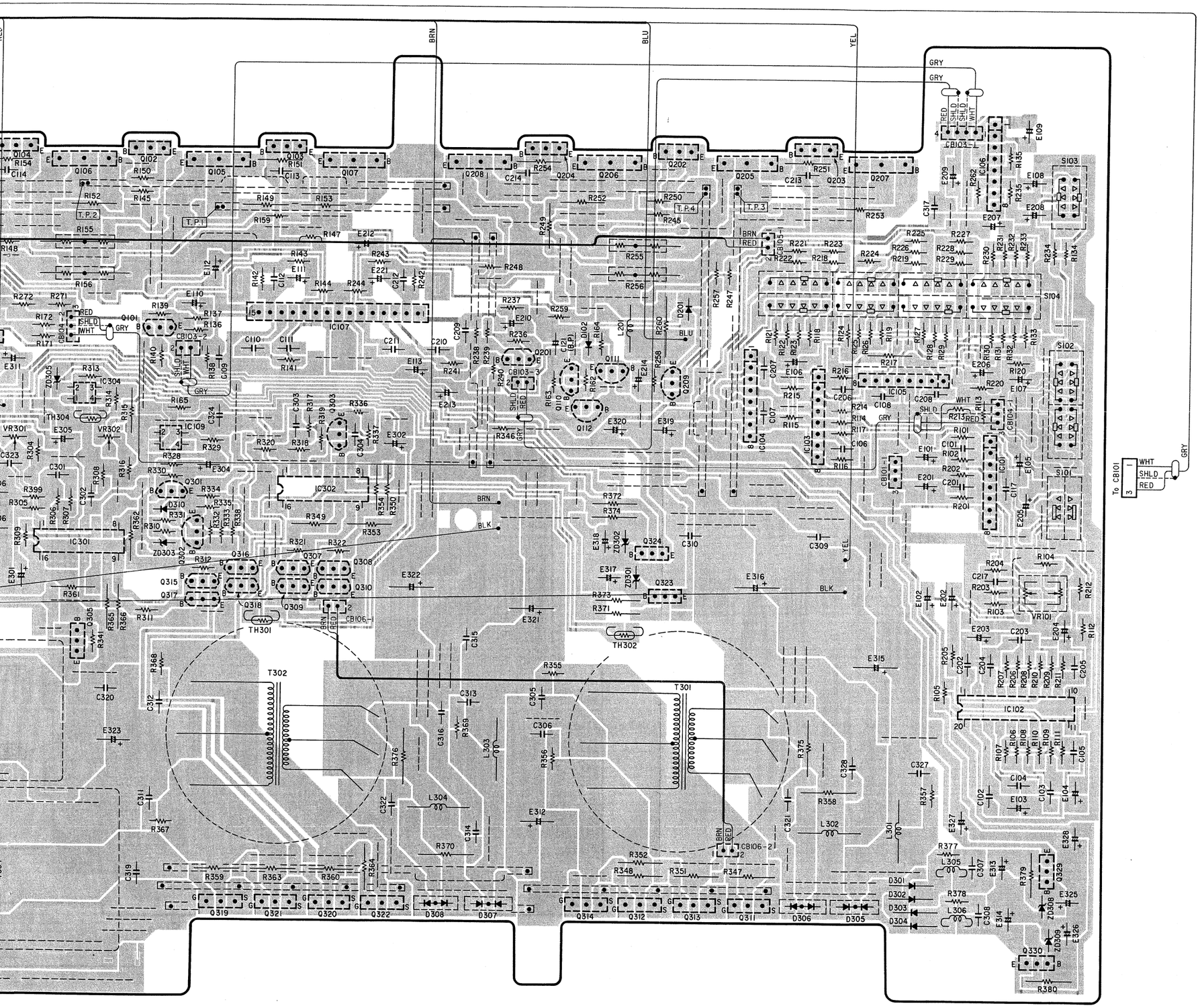
Parts Layout on P.C.Boards and Wiring Diagram

All P. C. Boards viewed from soldered side.

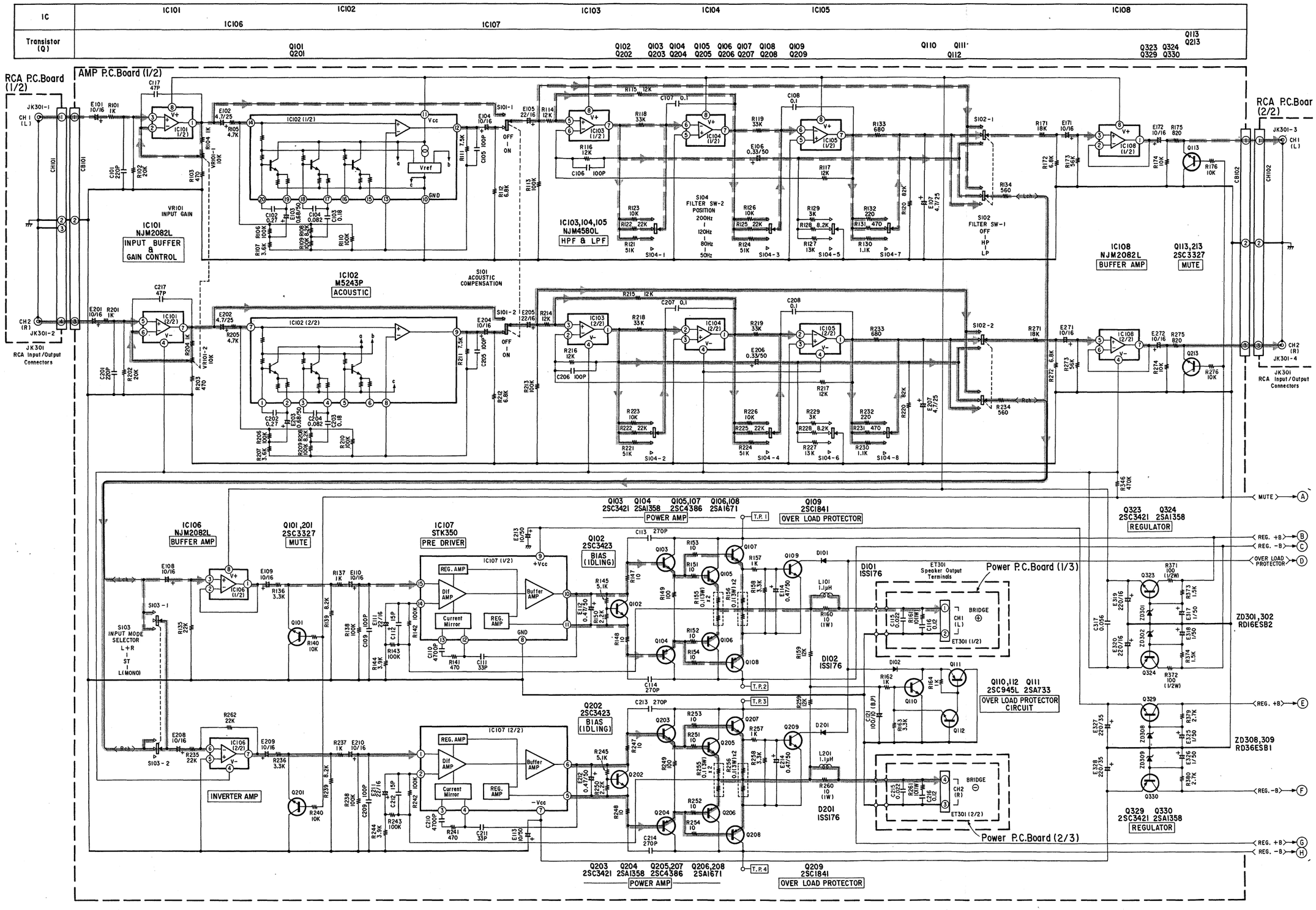


P. C. Boards viewed from soldered side.

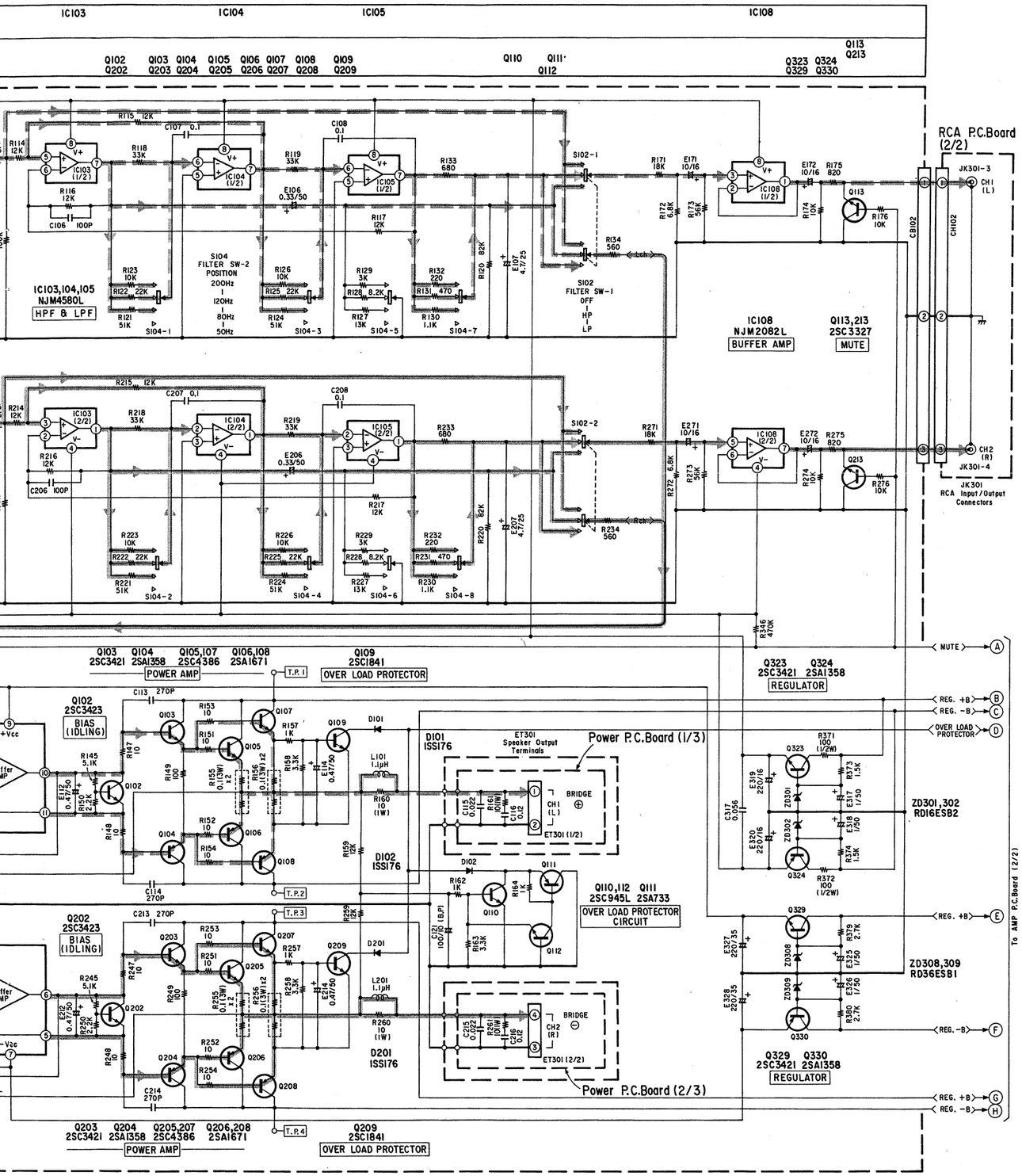


Schematic Diagram (1/2)

NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



	IC102	IC107
Pin	Voltage	Voltage
1	5.5V	0V
2	5V	–0.3V
3	5.5V	31.5V
4	5V	31V
5	5.5V	–1.2V
6	5V	1.2V
7	5.5V	–32.4V
8	5.5V	0V
9	5.5V	32.4V
10	0V	1.2V
11	15.8V	–1.2V
12	5.5V	31V
13	5.5V	31.5V
14	5.5V	–0.3V
15	5V	0V
16	5.5V	
17	5V	
18	5.5V	
19	5V	
20	5.5V	

IC101,103,104
105,106,108

Pin	Voltage
1	0V
2	0V
3	0V
4	–15.8V
5	0V
6	0V
7	0V
8	15.8V

Ref. No.	E	C	B
Q101,201	0V	0V	MUTE ON: –14.8V MUTE OFF: 0.6V
Q102,202	–1.2V	1.2V	–0.2V
Q103,203	0.6V	32.5V	1.2V
Q104,204	–0.6V	–32.5V	–1.2V
Q105,107 205,207	0.003V	32.5V	0.6V
Q106,108 206,208	–0.003V	–32.5V	–0.6V
Q109,209	–0.003V	31.3V	0.003V
Q110,112	0V	31.3V	0V
Q111	31.3V	0V	31.3V
Q113,213	0V	0V	MUTE ON: –14.8V MUTE OFF: 0.6V
Q323	15.8V	29V	16.4V
Q324	–15.8V	–29.5V	–16.4V
Q329	32.4V	33.8V	33V
Q330	–32.4V	–33.8V	–33V

- Voltage Measuring Condition
1. Power Supply Voltage : DC12.5V
2. Measuring Meter : Digital Multi Meter
3. Measuring Point Reference : Between GND
4. Measuring Condition : No Signal Input

Schematic Diagram (2/2)

NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000

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IC					IC301 IC302 IC305							IC303 IC304		IC109				
Transistor (Q)		Q321 Q322 Q313 Q314	Q319 Q320 Q311 Q312	Q315 Q316 Q307 Q308	Q317 Q318 Q309 Q310						Q304	Q305 Q306		Q326 Q328	Q325 Q327 Q301		Q302	Q303

AMP P.C.Board (2/2)

Q315,316 Q317,318 Q319-322
2SC2960 2SA1481 2SK1191
DC-DC CONVERTER

REG. +B
REG. -B
C313 1000P R369 390 (1W)
L303 CHOKE COIL
D307 F10P20F
D308 F10P20FR
L304 CHOKE COIL
C314 1000P R370 390 (1W)
T302 POWER TRANS.
E324 0.1/50
Q321 Q319 Q320 Q322
Q315 Q317 Q318 Q316
R311 100
R312 100
R365 330
R366 330
R359 68
R360 68
R363 68
R364 68

IC301
Vcc
GND
T F/F
LOW VOLTAGE STOP
REFERENCE REGULATOR
EA.II
EA.I
PWM COMPARATOR
DEAD-TIME COMPARATOR
OSC
R361 220
R362 220
R308 10K
C302 1200P
R309 18K
R305 3.3K
R306 100K
C301 0.1
R307 62K
R399 3.3K
TH303 20K
R302 2.2K
VR301 4.7K
R303 560
R304 1.5K
C323 0.1
E301 220/10

IC301, 302
μPC494C
SWITCHING CONTROL

IC303,304
PS2501-1
PWM CONTROL

ZD304
RD39ESB2
R301 4.7K
IC303
ZD304

Q325 Q326 Q327,328
2SC945L DTA114ES DTC114ES
LED SWITCHING
R327 3.3K
R323 560(1/2W)
R324 680(1/2W)
R326 680(1/2W)
R325 560(1/2W)

LED P.C.Board
LD301
LD302
LD301,302
AABG4307
CB301
CH301

Q302 Q303
2SC945L 2SA733
THERMAL OVER CURRENT PROTECTOR

Q307,308 Q309,310 Q311-314
2SC2960 2SA1481 2SK1191
DC-DC CONVERTER

G REG. +B
H REG. -B
C327 1000P R357 390 (1W)
L301 CHOKE COIL
D305 F10P20F
D306 F10P20FR
L302 CHOKE COIL
C328 1000P R358 390 (1W)
T301 POWER TRANS.
E329 0.1/50
Q313 Q311 Q312 Q314
Q307 Q309 Q310 Q308
R321 100
R322 100
R353 330
R354 330
R347 68
R348 68
R351 68
R352 68

IC302
Vcc
GND
T F/F
LOW VOLTAGE STOP
REFERENCE REGULATOR
EA.II
EA.I
PWM COMPARATOR
DEAD-TIME COMPARATOR
OSC
R349 220
R350 220
R318 100K
C303 0.1
R319 62K
R320 3.3K
TH304 20K
R314 2.2K
VR302 4.7K
R315 560
R316 1.5K
C324 0.1
E302 220/10

ZD305
RD39ESB2
R313 4.7K
IC304
ZD305

IC109
PS2501-1
SWITCHING
R165 6.8K
IC109
ZD303
RD22ESB1
D310 1SS176
R310 5.6K
E303 100/16
TH301 20K
TH302 20K
R336 10K
C304 0.01
D310
R337 10K
Q303
R329 470
R330 10K
Q301
R331 22K
R333 22K
R338 51OK
Q302
R328 100K
E304 100/16
R334 220
R335 220
R332 22K
E305 220/10

Q301
2SC945L
SWITCHING

To AMP P.C.Board (1/2)

E Reg. +B
F Reg. -B
C307 1000P R377 330 (1W)
L305 CHOKE COIL
D301
D302
L306 CHOKE COIL
D303
D304
C308 1000P R378 330 (1W)
D301-304
1IE2

D OVER LOAD PROTECTOR
A MUTE

IC305
35423W01
MUTE
D309
1IE2
IC305
BATT TC1 TC2 TC3 GND MUTE REMOTE μ-COM
E308 100/16
E309 100/10
E310 10/16
E311 100/16

Q304
2SC945L
REGULATOR
R339 10
R340 470
E306 100/10
ZD306
E307 100/10

Q305 Q306
2SA1358 DTC114ES
SWITCHING
Q305
Q306
ZD307
R342 1K
R341 3.3K
R343 150K
R344 22K
R345 8.2K
C326 1000P

T304 CHOKE TRANS.
T303 CHOKE TRANS.
L307 LINE FILTER
C330 0.22

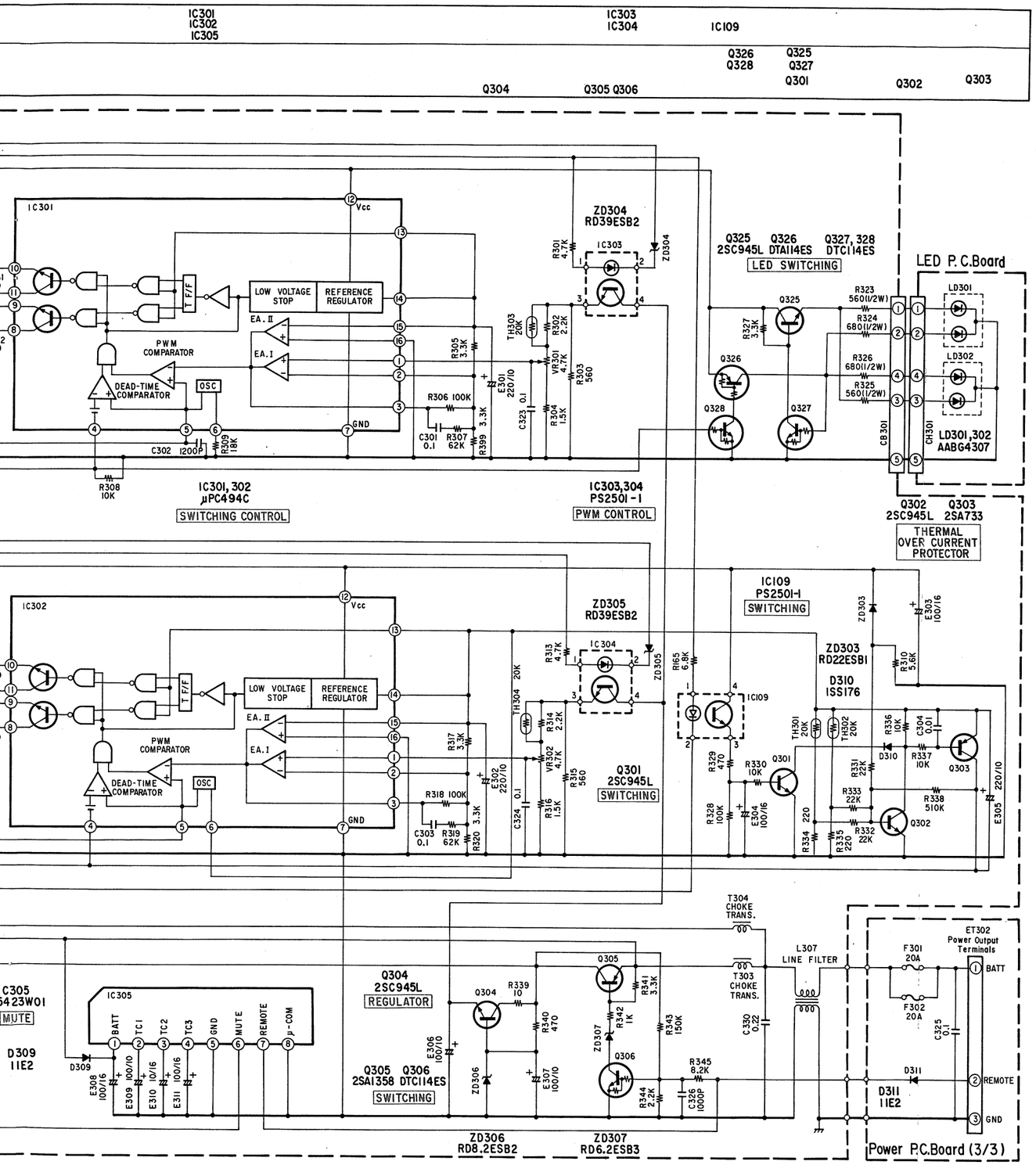
ZD306
RD8.2ESB2
ZD307
RD6.2ESB3

ET302 Power Output Terminals
F301 20A
F302 20A
C325 0.1
D311
D311
1IE2
BATT
REMOTE
GND

Power P.C.Board (3/3)

1 2 3 4 5
A B C D E F G H
—34— —35—

NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



	IC109	IC303,304
Pin	Voltage	Voltage
1	32.5V	6.7V
2	31.9V	5.7V
3	0V	5.6V
4	12.4V	7.3V

IC301,302

Pin	Voltage
1	2.5V
2	2.5V
3	3.1V
4	0V
5	1.6V
6	3.7V
7	0V
8	11.8V
9	0.9V
10	0.9V
11	11.8V
12	12.4V
13	5V
14	5V
15	5V
16	0V

IC305

Pin	Voltage
1	12V
2	7V
3	0V
4	11.5V
5	0V
6	MUTE ON: −14.8V MUTE OFF: 11.8V
7	12.5V
8	0V

Ref. No.	E	C	B
Q301	0V	ON: 4.3V OFF: 0V	ON: 0V OFF: 0.64V
Q302	0V	ON: 4.9V OFF: 0V	ON: 0V OFF: 0.63V
Q303	4.9V	ON: 0V OFF: 4.2V	ON: 4.9V OFF: 3.8V
Q304	7.3V	12.2V	8V
Q305	12.5V	12.4V	11.7V
Q306	0V	0V	2.3V
Q307,308 315,316	1V	12.4V	0.9V
Q309,310 317,318	1V	0V	0.9V
Q325	LED ON: 11.3V LED OFF: 0V	12.4V	LED ON: 12V LED OFF: 0V
Q326	12.4V	LED ON: 0V LED OFF: 11.8V	LED ON: 12.3V LED OFF: 0V
Q327	0V	LED ON: 12V LED OFF: 0V	LED ON: 0V LED OFF: 11.8V
Q328	0V	LED ON: 12.3V LED OFF: 0V	LED ON: 0V LED OFF: 4.2V

Ref. No.	G	D	S
Q311,312 313,314 319,320 321,322	1V	12.5V	0V

● Voltage Measuring Condition
1. Power Supply Voltage : DC12.5V
2. Measuring Meter : Digital Multi Meter
3. Measuring Point Reference : Between GND
4. Measuring Condition : No Signal Input

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor : μF = microfarads, pF = picofarads

Abbreviations

RES. =	Resistor	CAP. =	Capacitor
C.F. =	Carbon Film	ELY. =	Electrolytic
M.F. =	Metal Film	CER. =	Ceramic
M.O. =	Metal Oxide Film	MYL. =	Mylar
M.P. =	Metal Plate	TAN. =	Tantalum
TR. =	Transistor	POLY. =	Polystyrol
TRANS. =	Transformer	PP. =	Polypropylene
CP. =	Chip	PLT. =	Polyethylene
		PF. =	Polyester Film

AMP P. C. Board

IC's

Symbol No.	Part No.	Description
IC101	51E09166S01	NJM2082L
IC102	51T25431W01	M5243P
IC103	51T25576W02	NJM4580L
IC104	51T25576W02	NJM4580L
IC105	51T25576W02	NJM4580L
IC106	51E09166S01	NJM2082L
IC107	51T45364W01	STK350
IC108	51E09166S01	NJM2082L
IC109	51E09178S01	PS2501-1
IC301	51T70759F01	μPC494C
IC302	51T70759F01	μPC494C
IC303	51E09178S01	PS2501-1
IC304	51E09178S01	PS2501-1
IC305	51T35423W01	35423W01

Transistors

Symbol No.	Part No.	Description
Q101	48E06355S01	2SC3327
Q102	48T64376F03	2SC3423
Q103	48T69176F02	2SC3421
Q104	48T70761F01	2SA1358
Q105	48E06361S04	2SC4386
Q106	48E06360S04	2SA1671
Q107	48E06361S04	2SC4386
Q108	48E06360S04	2SA1671
Q109	48E08295S01	2SC1841
Q110	48S44578J02	2SC945L
Q111	48T40081T02	2SA733
Q112	48S44578J02	2SC945L
Q113	48E06355S01	2SC3327
Q201	48E06355S01	2SC3327
Q202	48T64376F03	2SC3423
Q203	48T69176F02	2SC3421
Q204	48T70761F01	2SA1358
Q205	48E06361S04	2SC4386
Q206	48E06360S04	2SA1671
Q207	48E06361S04	2SC4386
Q208	48E06360S04	2SA1671
Q209	48E08295S01	2SC1841
Q213	48E06355S01	2SC3327
Q301	48S44578J02	2SC945L
Q302	48S44578J02	2SC945L
Q303	48T40081T02	2SA733
Q304	48S44578J02	2SC945L
Q305	48T70761F01	2SA1358
Q306	48E09189S02	DTC114ES
Q307	48E10309S01	2SC2960
Q308	48E10309S01	2SC2960
Q309	48E10308S01	2SA1481
Q310	48E10308S01	2SA1481
Q311	48E10310S01	FET, 2SK1191
Q312	48E10310S01	FET, 2SK1191
Q313	48E10310S01	FET, 2SK1191
Q314	48E10310S01	FET, 2SK1191
Q315	48E10309S01	2SC2960
Q316	48E10309S01	2SC2960
Q317	48E10308S01	2SA1481
Q318	48E10308S01	2SA1481
Q319	48E10310S01	FET, 2SK1191
Q320	48E10310S01	FET, 2SK1191
Q321	48E10310S01	FET, 2SK1191
Q322	48E10310S01	FET, 2SK1191
Q323	48T69176F02	2SC3421
Q324	48T70761F01	2SA1358
Q325	48S44578J02	2SC945L
Q326	48E09189S01	DTA114ES
Q327	48E09189S02	DTC114ES
Q328	48E09189S02	DTC114ES
Q329	48T69176F02	2SC3421
Q330	48T70761F01	2SA1358

Symbol No.	Part No.	Description
Diodes		
D101	48T58583F01	1SS176
D102	48T58583F01	1SS176
D201	48T58583F01	1SS176
D301	48E02081S01	11E2
D302	48E02081S01	11E2
D303	48E02081S01	11E2
D304	48E02081S01	11E2
D305	48E09190S01	F10P20F
D306	48E09190S02	F10P20FR
D307	48E09190S01	F10P20F
D308	48E09190S02	F10P20FR
D309	48E02081S01	11E2
D310	48T58583F01	1SS176
ZD301	48T68702F60	Zener, RD16ESB2
ZD302	48T68702F60	Zener, RD16ESB2
ZD303	48T68702F68	Zener, RD22ESB1
ZD304	48T68702F93	Zener, RD39ESB2
ZD305	48T68702F93	Zener, RD39ESB2
ZD306	48T68702F39	Zener, RD8.2ESB2
ZD307	48T68702F31	Zener, RD6.2ESB3
ZD308	48T68702F88	Zener, RD36ESB1
ZD309	48T68702F88	Zener, RD36ESB1
Switches		
S101	40E09139S01	Slide, SSSF12 (ACOUSTIC COMPENSATION)
S102	40E09136S01	Slide, SSSF14 (FILTER SW-1)
S103	40E09138S01	Slide, SSSF12 (INPUT MODE SELECTOR)
S104	40E10315S01	Rotary, SRRZS8 (FILTER SW-2)
Transformers / Thermistors		
T301	24E10312S01	TRANS., Power
T302	24E10312S01	TRANS., Power
T303	25E06343S01	TRANS., Choke
T304	25E06343S01	TRANS., Choke
TH301	48E06365S01	20K ohm
TH302	48E06365S01	20K ohm
TH303	48E06365S01	20K ohm
TH304	48E06365S01	20K ohm

Symbol No.	Part No.	Description
Coils		
L101	24E06338S01	1.1μF
L201	24E06338S01	1.1μF
L301	24E07941S01	Choke
L302	24E07941S01	Choke
L303	24E07941S01	Choke
L304	24E07941S01	Choke
L305	24E10313S01	Choke
L306	24E10313S01	Choke
L307	24E10311S01	Line, Filter
Capacitors		
C101	08E04860S01	CER., 220pF
E101	23E10305S01	ELY., 10μF/16V
C102	08E09008S11	PF., 0.27μF
E102	23E04822S01	ELY., 4.7μF/25V
C103	08E09008S12	PF., 0.18μF
E103	23E07074S03	ELY., 0.68μF/50V
C104	08E09008S03	PF., 0.082μF
E104	23E06854S01	ELY., 10μF/16V
C105	21E06323S01	CER., 100pF
E105	23E04820S01	ELY., 22μF/16V
C106	21E06323S01	CER., 100pF
E106	23E07075S01	ELY., 0.33μF/50V
C107	08E09008S06	PF., 0.1μF
E107	23E04822S01	ELY., 4.7μF/25V
C108	08E09008S06	PF., 0.1μF
E108	23E06854S01	ELY., 10μF/16V
C109	21E06323S01	CER., 100pF
E109	23E06854S01	ELY., 10μF/16V
C110	08E09151S11	MYL., 4700pF
E110	23E06854S01	ELY., 10μF/16V
C111	21E03731S01	CER., 33pF
E111	23E04820S01	ELY., 22μF/16V
C112	21E07286S03	CER., 15pF
E112	23E04826S01	ELY., 0.47μF/50V
C113	08E04860S02	CER., 270pF
E113	23E07074S04	ELY., 10μF/50V
C114	08E04860S02	CER., 270pF
E114	23E04826S01	ELY., 0.47μF/50V
C117	21E07287S01	CER., 47pF
C121	23E06330S01	ELY., (B.P) 100μF/10V
E171	23E06854S01	ELY., 10μF/16V
E172	23E06854S01	ELY., 10μF/16V
C201	08E04860S01	CER., 220pF
E201	23E10305S01	ELY., 10μF/16V
C202	08E09008S11	PF., 0.27μF

Symbol No.	Part No.	Description
E202	23E04822S01	ELY., 4.7μF/25V
C203	08E09008S12	PF., 0.18μF
E203	23E07074S03	ELY., 0.68μF/50V
C204	08E09008S03	PF., 0.082μF
E204	23E06854S01	ELY., 10μF/16V
C205	21E06323S01	CER., 100pF
E205	23E04820S01	ELY., 22μF/16V
C206	21E06323S01	CER., 100pF
E206	23E07075S01	ELY., 0.33μF/50V
C207	08E09008S06	PF., 0.1μF
E207	23E04822S01	ELY., 4.7μF/25V
C208	08E09008S06	PF., 0.1μF
E208	23E06854S01	ELY., 10μF/16V
C209	21E06323S01	CER., 100pF
E209	23E06854S01	ELY., 10μF/16V
C210	08E09151S11	MYL., 4700pF
E210	23E06854S01	ELY., 10μF/16V
C211	21E03731S01	CER., 33pF
E211	23E04820S01	ELY., 22μF/16V
C212	21E07286S03	CER., 15pF
E212	23E04826S01	ELY., 0.47μF/50V
C213	08E04860S02	CER., 270pF
E213	23E07074S04	ELY., 10μF/50V
C214	08E04860S02	CER., 270pF
E214	23E04826S01	ELY., 0.47μF/50V
C217	21E07287S01	CER., 47pF
E271	23E06854S01	ELY., 10μF/16V
E272	23E06854S01	ELY., 10μF/16V
C301	08E09008S06	PF., 0.1μF
E301	23E04836S01	ELY., 220μF/10V
C302	08E09151S06	MYL., 1200pF
E302	23E04836S01	ELY., 220μF/10V
C303	08E09008S06	PF., 0.1μF
E303	23E04833S01	ELY., 100μF/16V
C304	08E09151S02	MYL., 0.01μF
E304	23E04833S01	ELY., 100μF/16V
C305	08E09008S16	PF., 0.022μF
E305	23E04836S01	ELY., 220μF/10V
C306	08E09008S16	PF., 0.022μF
E306	23E01890S01	ELY., 100μF/10V
C307	08E09151S10	MYL., 1000pF
E307	23E01890S01	ELY., 100μF/10V
C308	08E09151S10	MYL., 1000pF
E308	23E04833S01	ELY., 100μF/16V
C309	08E09008S12	PF., 0.18μF
E309	23E01890S01	ELY., 100μF/10V
C310	08E09008S12	PF., 0.18μF
E310	23E06854S01	ELY., 10μF/16V
C311	08E09008S16	PF., 0.022μF
E311	23E04833S01	ELY., 100μF/16V
C312	08E09008S16	PF., 0.022μF
E312	23E10306S01	ELY., 3900μF/16V

Symbol No.	Part No.	Description
C313	08E09151S10	MYL., 1000pF
E313	23E09718S02	ELY., 330μF/50V
C314	08E09151S10	MYL., 1000pF
E314	23E09718S02	ELY., 330μF/50V
C315	08E09008S12	PF., 0.18μF
E315	23E09187S01	ELY., 4700μF/35V
C316	08E09008S12	PF., 0.18μF
E316	23E09187S01	ELY., 4700μF/35V
C317	08E09008S01	PF., 0.056μF
E317	23E08792S03	ELY., 1μF/50V
E318	23E08792S03	ELY., 1μF/50V
C319	08E09008S06	PF., 0.1μF
E319	23E08793S03	ELY., 220μF/16V
C320	08E09008S06	PF., 0.1μF
E320	23E08793S03	ELY., 220μF/16V
C321	08E10307S01	CER., 470pF
E321	23E09187S01	ELY., 4700μF/35V
C322	08E10307S01	CER., 470pF
E322	23E09187S01	ELY., 4700μF/35V
C323	08E09008S06	PF., 0.1μF
E323	23E10306S01	ELY., 3900μF/16V
C324	08E09008S06	PF., 0.1μF
E324	23E07074S01	ELY., 0.1μF/50V
E325	23E08792S03	ELY., 1μF/50V
C326	08E09151S10	MYL., 1000pF
E326	23E08792S03	ELY., 1μF/50V
C327	08E09151S10	MYL., 1000pF
E327	23E07882S02	ELY., 220μF/35V
C328	08E09151S10	MYL., 1000pF
E328	23E07882S02	ELY., 220μF/35V
E329	23E07074S01	ELY., 0.1μF/50V
C330	08E09008S10	PF., 0.22μF

Resistors

R155	06E10314S01	Plate, 0.1 ohm×2
R156	06E10314S01	Plate, 0.1 ohm×2
R160	06E06383S01	SPR., 10 ohm 1W
R255	06E10314S01	Plate, 0.1 ohm×2
R256	06E10314S01	Plate, 0.1 ohm×2
R260	06E06383S01	SPR., 10 ohm 1W
R323	06E07006S02	C.F., 560 ohm 1/2W
R324	06E03962S01	C.F., 680 ohm 1/2W
R325	06E07006S02	C.F., 560 ohm 1/2W
R326	06E03962S01	C.F., 680 ohm 1/2W

Symbol No.	Part No.	Description
R355	06E06383S01	SPR., 10 ohm 1W
R356	06E06383S01	SPR., 10 ohm 1W
R357	06E03813S07	SPR., 390 ohm 1W
R358	06E03813S07	SPR., 390 ohm 1W
R367	06E06383S01	SPR., 10 ohm 1W
R368	06E06383S01	SPR., 10 ohm 1W
R369	06E03813S07	SPR., 390 ohm 1W
R370	06E03813S07	SPR., 390 ohm 1W
R371	06E07006S03	C.F., 100 ohm 1/2W
R372	06E07006S03	C.F., 100 ohm 1/2W
R375	06E03813S08	SPR., 470 ohm 1W
R376	06E03813S08	SPR., 470 ohm 1W
R377	06E03813S06	SPR., 330 ohm 1W
R378	06E03813S06	SPR., 330 ohm 1W
VR101	18E09602S01	Variable, 10K ohm
VR301	18E09669S01	Variable, 4.7K ohm
VR302	18E09669S01	Variable, 4.7K ohm

Power P. C. Board

Diode

D311	48E02081S01	11E2

Capacitors

C115	08E09008S16	PF., 0.022μF
C116	08E09008S04	PF., 0.12μF
C215	08E09008S16	PF., 0.022μF
C216	08E09008S04	PF., 0.12μF
C325	08E09008S06	PF., 0.1μF

Resistors

R161	06E06383S01	SPR., 10 ohm 1W
R261	06E06383S01	SPR., 10 ohm 1W

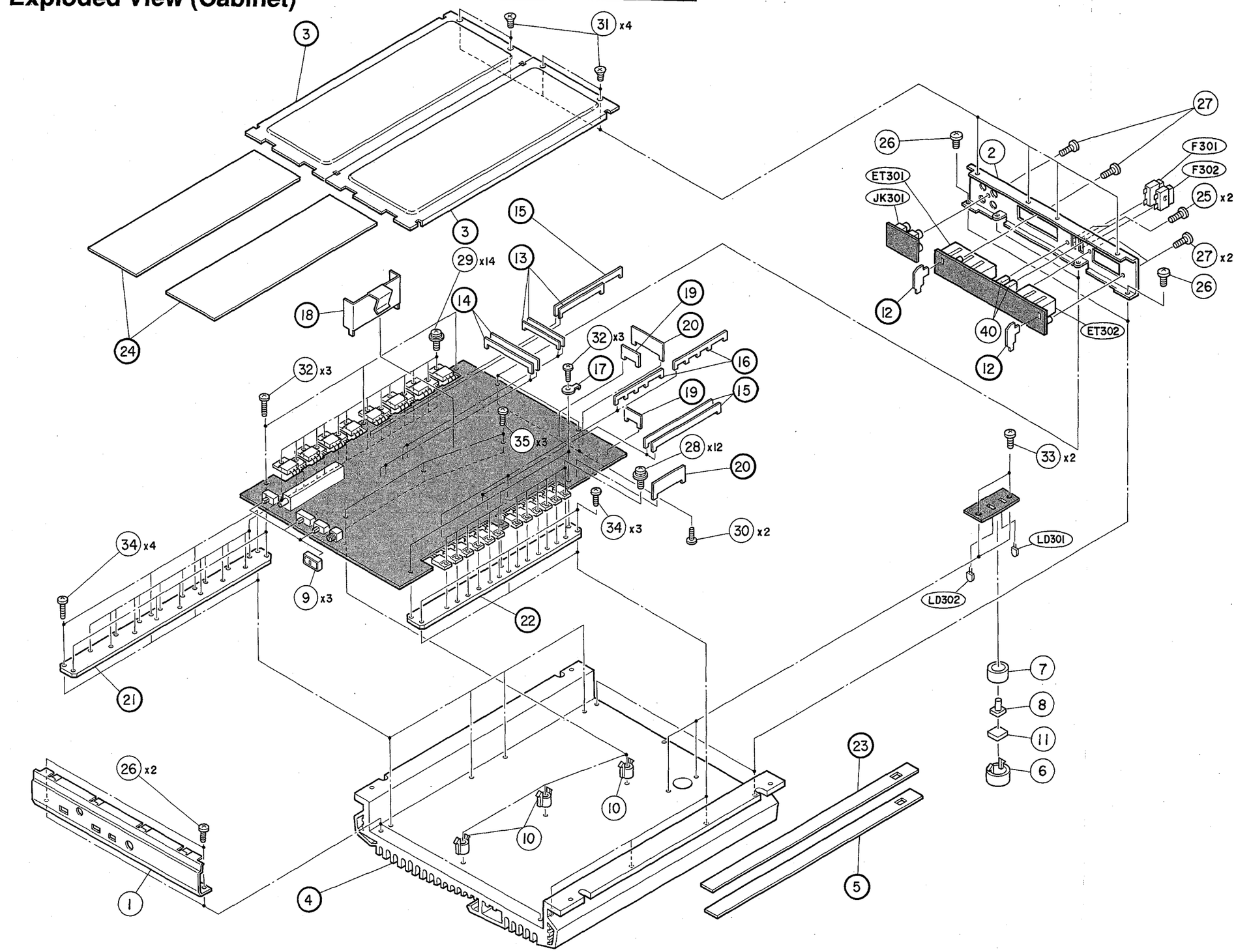
Symbol No.	Part No.	Description

Miscellaneous

ET301	29E10325S01	Speaker Output Terminals (4P)
ET302	29E09185S01	Power Output Terminals (3P)
F301	65S58596F06	Fuse, Auto 20A (For Battery Line)
F302	65S58596F06	Fuse, Auto 20A (For Battery Line)
JK301	09E06320S01	RCA Input/Output Connectors
LD301	48E06366S01	LED, AABG4307K (ORG/GRN)
LD302	48E06366S01	LED, AABG4307K (ORG/GRN)

Exploded View (Cabinet)

3549 3549



Cabinet Assembly Parts List

Note : The parts without parts list are not supplied.

Symbol No.	Index	Part No.	Description
1	5-B	27E10370S01	Front Chassis
2	1-F	27E10371S01	Rear Chassis
6	4-F	15E09383S01	Holder, LED
7	4-F	15E09384S01	Cover, LED
8	4-F	07E09492S01	LED, Preset Base
9	4-B	36E09132S01	Switch, Knob B
10	5-D	43E08008S01	Support, P.C.Board
11	4-F	61E06376S01	Lens LED
25	2-G	03E08303S01	Screw, CPTS-4 (M2×6)
26		03E06480S01	Screw, CPTS-2 (M3×6)
27		03E04878S01	Screw, CPTS-2 (M3×8)
28	3-D	03E08304S01	Screw, CPTS-2 W (M3×8.5)
29	2-C	03E08305S01	Screw, CPTS-2 W (M3×9.5)
30	3-E	03E06492S01	Screw, CBTS-3 (M3×5)
31	1-D	03E06493S02	Screw, CFTS-3 (M3×6)
32		03E08429S02	Screw, CBTS-2 (M3×6)
33	3-F	03E08429S01	Screw, CBTS-2 (M3×6)
34		03E06967S01	Screw, CBTS-2 (M3×10)
35	3-D	03E07234S02	Screw, CBTS-2 (M3×12)
40	2-F	09E06453S01	Fuse Holder

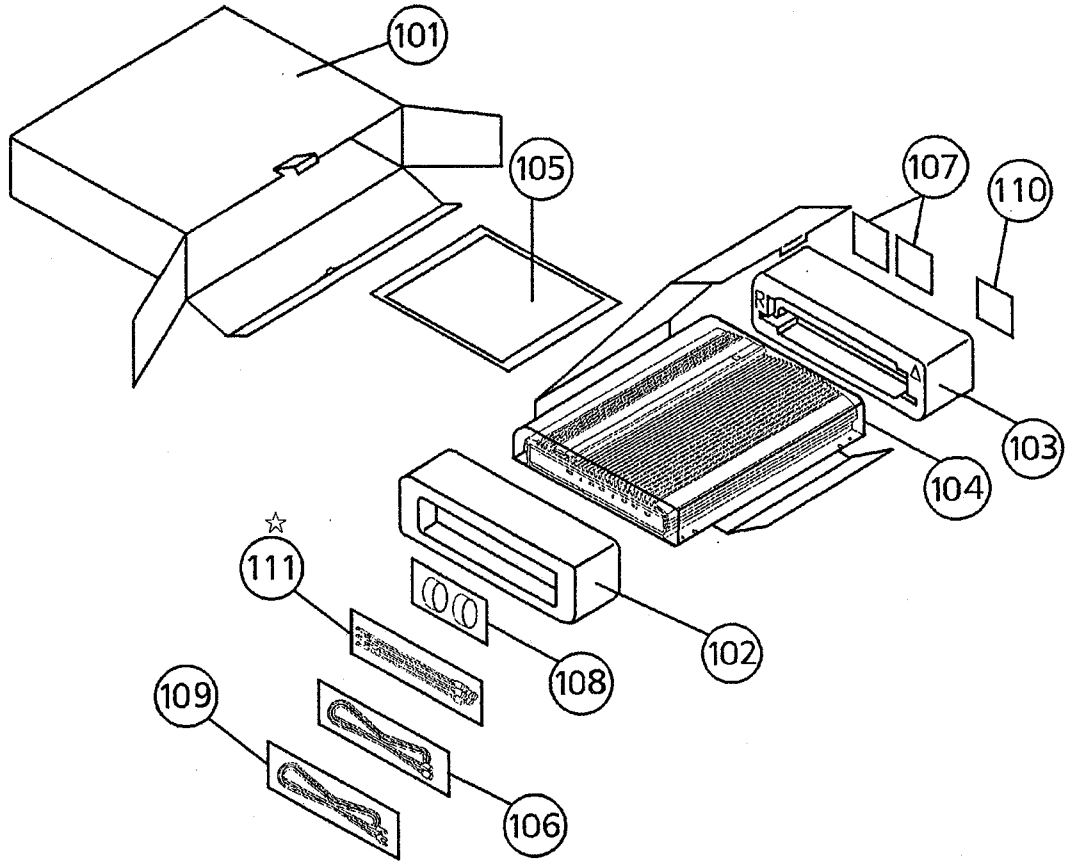
Symbol No.	Index	Part No.	Description

Packing Assembly Parts List

Symbol No.		Part No.	Description
○	101	56E10284S01	Carton, Packing
△	101	56E10304S01	Carton, Packing
☆	101	56E10348S01	Carton, Packing
	102	56E06374S01	Tray, Packing (L)
	103	56E06375S01	Tray, Packing (R)
	104	56B72811F08	Sack, Polyethylene
○	105	68P40151W61	Owner's Manual
△	105	68P40151W70	Owner's Manual
☆	105	68P40151W69	Owner's Manual
	106	01E08346S01	Remote Turn-On Lead Wire
	107	65S58596F06	Fuse, Auto 20A (For Battery Line)
	108-1	15A81064F01	Housing Rubber
	108-2	15A81064F03	Housing Rubber
	109-1	30E10206S01	Battery Lead Wire
	109-2	30E10207S01	GND Lead Wire
	110	03E07057S01	Screw, CHTS-1 (M4×14)
☆	111	01E10349S01	Assy., Speaker Cord

Notes : ○ : For North American Model Only, △ : For General Foreign Model Only,
☆ : For Japanese Model Only, Others : Common.

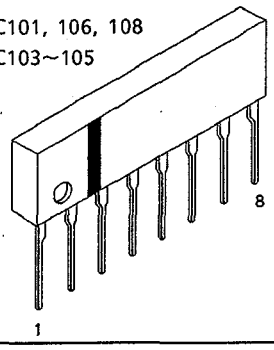
Packing Method View

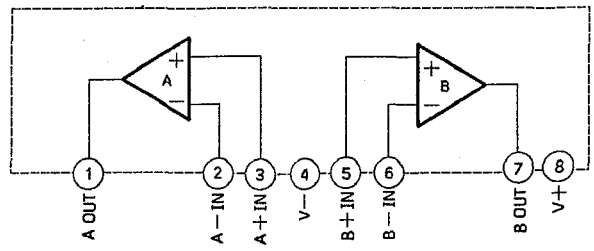


Notes : ☆ : For Japanese Model Only, Others : Common.

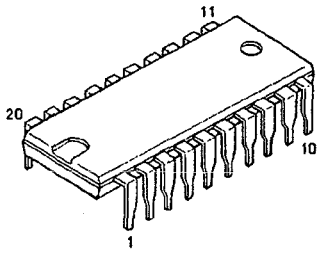
Semi - Conductor Lead Identifications

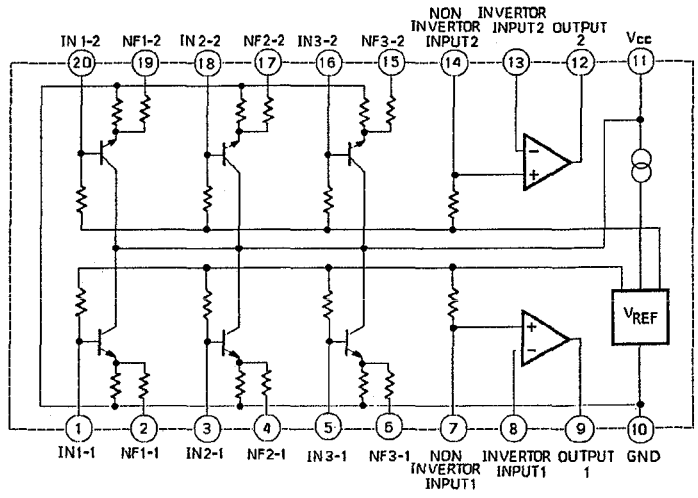
NJM2082L : IC101, 106, 108
NJM4580L : IC103~105



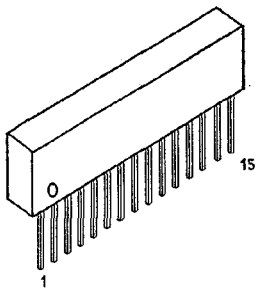


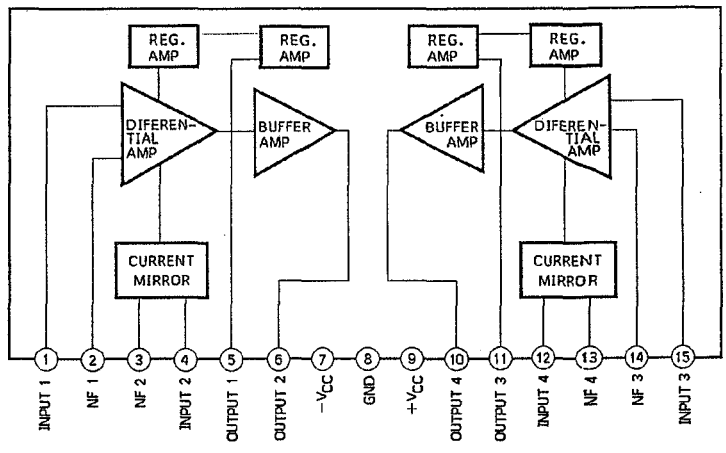
M5243P : IC102



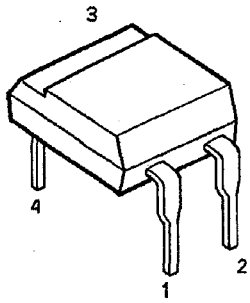


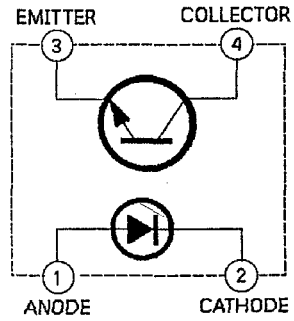
STK350 : IC107



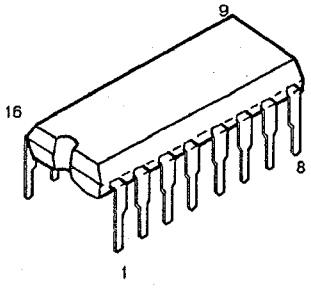


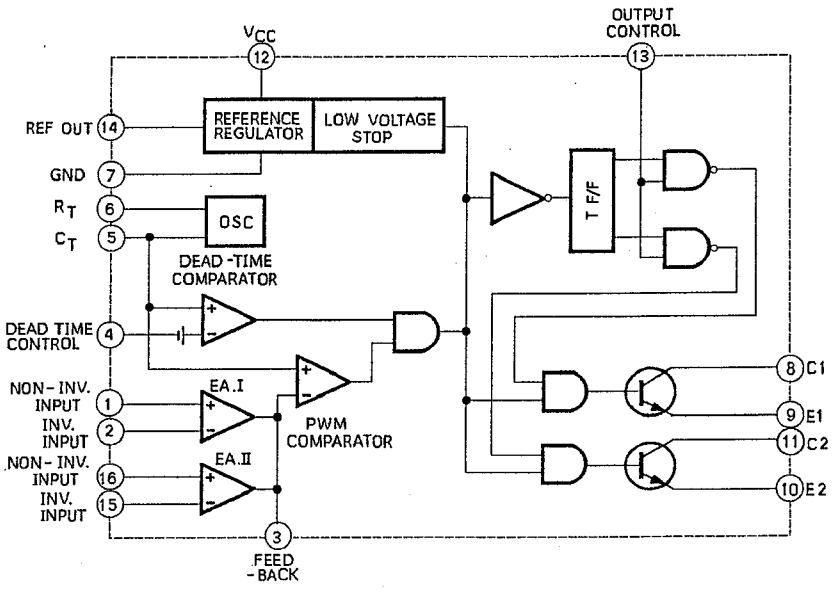
PS2501-1 : IC109, 303, 304



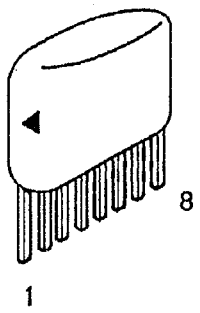


μPC494C : IC301, 302





35423W01 : IC305



PIN NO.	CODE ADDRESS	I/O
1	BATT	—
2	TC1	—
3	TC2	—
4	TC3	—
5	GND	—
6	MUTE	O
7	REMOTE	I
8	μ-COM	I